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# Guidelines and Example for the Preparation of the CEAS EuroGNC Conference Papers

## First Author

(*simple example*) Job Title, Business/Academic Affiliation , City, Country.  
[first.author@affiliation.com](mailto:first.author@affiliation.com)

## Nicolas Fezans

(*here is an example for multiple jobs and affiliations and use of the orcidlink and rorlink, cf. instructions in section 7.4*)

Example of First Job, Example Affiliation with CEAS , [fake@ceas.org](mailto:fake@ceas.org)

Example of Second Job, Example Affiliation with DLR (German Aerospace Center) , Braunschweig, Germany. [nicolas.fezans@dlr.de](mailto:nicolas.fezans@dlr.de)

## Third author with a very very very very very very very long name

And a very very very very long Job Title, as well as a very very very very long Business/Academic Affiliation, the same for the City, and also a very long name for his/her Country. [third.author@affiliation.com](mailto:third.author@affiliation.com)

## ABSTRACT

This document serves as example for using the  $\text{\LaTeX}$  template for the CEAS Conference on Guidance, Navigation and Control (EuroGNC). It also contains guidelines for the authors regarding the preparation, the content, and layout of the papers. The paper must include an abstract as this one below the title and the authors (with their respective affiliations).

**Keywords:** CEAS EuroGNC, Paper Preparation Guidelines, Authors Instructions, Template

## Nomenclature

$\Psi, \Theta, \Phi$	= Euler angles (heading, pitch, roll)
$F$	= force
$a$	= acceleration
$d$	= damping
$k$	= stiffness
$c$	= chord
$m$	= mass

## 1 Introduction

This document is a  $\text{\LaTeX}$  template for preparation of papers for CEAS Conference on Guidance, Navigation and Control. If you are reading a hard copy or PDF version of this document, you can download the latest version of the template on the page [https://eurognc.ceas.org/author\\_instructions/](https://eurognc.ceas.org/author_instructions/).

Make sure to use the latest template, as updates and bug fixes may have been introduced. Report technical issues by email to the address: [nicolas.fezans@dlr.de](mailto:nicolas.fezans@dlr.de). The template is tested primarily with



pdfLaTeX and BibTeX as they are assumed to constitute the most widely used combination of tools in our community at the time of the writing. Users of more modern/recent toolchains are usually able to use and, if needed, adapt this template to their preferred tools. **If you use different tools, check the final result with the original template as subtle differences may progressively be introduced and might not be obvious at first.**

## 2 Paper Numbers

Starting with EuroGNC 2026, a paper number will be assigned to every paper shortly after the draft paper submission and will not be changed afterwards. This paper number need to be inserted in place of “XYZ” in the command:

```
\papernumber{XYZ}
```

which is approximately line 25 in the example TeX file. Setting this number properly is crucial for the header of the first page (number and DOI link) and for the page numbers in the footer of every page.

## 3 Open-Access and Copyrights

All papers will be published online following an open-access model. They will be released under the Creative Common (CC-BY 4.0) license. Copyright restrictions to specific parts of the paper, for example a specific picture, can be applied: it is the authors’ responsibility to indicate this at the appropriate place (e.g., on the picture or its caption). If different copyrights apply, it is the authors’ responsibility to ensure that they obtained the rights or licenses to distribute and include the copyrighted material in their papers. No copyright restriction that could limit the normal use of the paper for research, including its distributions, storage, copy, or printing, can be used. The typical restrictions and additions that are acceptable include the proper credit of photographers, credits and copyright information for figures reproduced with permissions from other work, and restrictions regarding the right to extract or modify / make a derivative work based on a part or figure of the paper.

### Copyright Markups

By submitting their work to the CEAS EuroGNC 2026 conference, the authors agree to these terms and acknowledge that **no exception will be granted**. Accordingly the following mentions is added to every page of the papers (just as in this template):

*Except where otherwise noted, content of this paper is licensed under a Creative Commons Attribution 4.0 International License.*

*The reproduction and distribution with attribution of the entire paper or of individual pages, in electronic or printed form, including any material under non-CC-BY 4.0 licenses is hereby granted by the authors and respective copyright owners.*

**Modifying these markups is not allowed!** They will be controlled systematically and restored to their original form if needed.



## 4 File Format

To ensure long-term readability of the papers on all platforms, the submitted PDF files must embed all fonts used (including in vector graphics drawings and plots). PDF protection should not be used. The PDF metadata should be set properly (title, authors keywords), which is automatic when using the L<sup>A</sup>T<sub>E</sub>X template and setting these properties in the block starting with (cf. approximately line 33 of the example):

```
\hypersetup{pdfinfo={  
    ...  
}}
```

Archive made by the authors or their company should be based on the final version with the correct paper number and PDF metadata to prevent the spread of copies that do not include the required information to properly cite them.

**The maximum size for the PDF file is 15 MB.** Note that papers are regularly transferred (downloaded, sent via email, etc.) and that it is therefore desirable to prevent large files. A typical reason for overly large file size is the unnecessary or improper use of bitmap images: either in place of some vector graphics formats or with unnecessary high resolution. In many cases a file size of 1-2 MB can be achieved with no noticeable loss of quality. **All fonts must be embedded in the PDF, even if they are widespread and slightly increase the size of the PDF file.**

Note also that some search engines index documents differently depending on their size. At the time of writing, Google Scholar better indexes PDF files that are below 5 MB. Optimizing the size of the PDF increases its visibility!

## 5 Paper Length

**There is no page limit.**

A maximum length of 10-15 pages is recommended **for the main content of the paper**: between the start of the Introduction and the end of the Conclusions. Title, Authors, Abstract, and Nomenclature at the beginning of the paper are not counted in this page recommendation. The Acknowledgment section (if present) and the References are not counted either.

The rationale for this definition is that complete nomenclature and reference lists positively impact the readability of the paper and allow for a more thorough discussion of alternative approaches (often leading to additional references).

The CEAS EuroGNC conference also welcomes papers that demonstrate the applicability of the proposed ideas and methods by using highly representative models and test scenarios. Describing these models or test scenarios so that the readers can properly interpret the results shown may require space, hence there is no page limit. Whether model description and test scenarios are included as an Appendix or within the main text of the paper is not important. However, it is recommended that the presentation of the core ideas / methods / novelties proposed remain within 10-15 pages. If a paper grows too long, the authors should consider narrowing its scope. Often, this happens when multiple ideas or concepts, better suited for separate papers, are combined into one. Including too many different ideas, concepts, or key messages, some will easily be overlooked.

## 6 EuroGNC AI policy (new)

Whether artificial intelligence (AI) was used or not, a section called “Declaration of Use of Artificial Intelligence” is mandatory (cf. page 8).

The EuroGNC AI-policy explicitly forbids some of the potential uses, others are limited to specific scenarios or scopes, and finally others are deemed acceptable. **We acknowledge that AI is evolving at a very high pace and the policy might need to evolve to follow new capabilities and uses of AI. We welcome an open dialogue with the authors on new tools and uses, with the aim of updating our AI policy in a timely manner.** The purpose of this policy is to provide clarity for the authors in the currently rapidly evolving AI environment by clearly indicating the uses that are allowed and those that are prohibited. **The overarching goal remains to ensure the scientific quality and integrity of the EuroGNC papers.** Possible productivity gains enabled by leveraging AI-tools can be allowed only if they do not conflict with this goal. The scientific integrity includes that the authorship of the work, the underlying ideas, and their presentation remain those of the authors of the paper. At the time of writing (2025), most popular AI tools are facing patent and copyright infringement lawsuits. In many cases, the improper use for training of data without the proper consent of the authors and copyright holders is well documented, and the authorship and copyright infringement claims may potentially extend to the content produced by these tools. The authors and their employers are responsible and accountable for any legal issues in relation to the content and media/artwork of their paper, including when produced by or with the help of an AI tool. The CEAS EuroGNC conference only accepts papers released by the authors according to the conditions explained in section 3.

Here are the currently applicable rules of the EuroGNC AI policy. Note that these rules may evolve, and we ask authors to contact the organisation team for any use that would seem to not have been considered.

- 1) Any use of AI must be disclosed in the “Declaration of Use of Artificial Intelligence” section. This section is mandatory even if no AI tool was used (cf. page 8).
- 2) The authors are ultimately responsible and accountable for the content of the work (not only legally, but also scientifically). Therefore, any content for which AI was used must be carefully reviewed, corrected, and completed if needed.
- 3) Any use of AI as an integral part of the research topic (e.g., use of deep learning for relative navigation or use of large language models to interact with human operators) **is allowed**.
- 4) The use of AI (in particular generative AI) to write parts or all of the text, images, or videos **is not allowed**. This includes summarizing (e.g., for the abstract, the conclusions, or for the literature review) as well as generation of artwork for illustration.
- 5) The use of AI for proofreading or translation is **deemed acceptable**, provided that the authorship remains evidently those of the authors. Again, the authors remains ultimately responsible for the correctness of the content.
- 6) The use of AI in the research work as assistance to improve productivity (e.g. during programming or data analysis) **is deemed acceptable but must be documented with great details**. The documentation contains details of exactly which tools and versions were used, and for which parts of the work they were used. Any potential impact on the results must be discussed by the authors, who ultimately are responsible for these results.
- 7) The semi-transparent use of AI as part of an equipment and which do not denature the content/data is also **deemed acceptable**. A typical example could be using a photo camera with AI-enhanced calibration, focusing, brightness, or colour balance features. The authors should be aware that such AI-based feature may fail in unusual scenarios and be cautious about the possible impact on the results of their work. Acknowledging that it is sometimes difficult to know whether AI-based algorithms have been used by manufacturers (especially for consumer electronics prod-

ucts), it is **highly recommended but not mandatory** to disclose such uses, especially if there is a risk that these algorithms may have affected the conclusions of the work.

- 8) Recognizing that nowadays many search engines include AI-generated summarised answers (e.g. Google Gemini), being influenced by seeing the outputs of these AI tools can hardly be prevented and do not need to be explicitly disclosed. However, any significant use of their output must be disclosed. For example, at the time of writing, the answer to a prompt like “*how to compute the factorial of a number in C++*” provided by the most common search engines includes detailed recipes to write the corresponding code or even several concrete implementations. The same applies for **summaries of literature** that such AI engines may have produced. **Any use of detailed information provided by the AI engines from search engines must be disclosed as for any other use of AI.**
- 9) The use of AI for literature research appears to be rising along with the introduction of AI tools that are increasingly better at such tasks. Being able to read and understand the work of others remains a key competency that young scientists/engineers need to learn and which require regular training. The currently available AI tools are still lacking the critical thinking required for good literature research and also often provide very incomplete results. Therefore, the use of such tools for literature research (for searching, not for writing the literature review section!) is **not recommended but tolerated**, provided that they are properly documented and disclosed. Again, it is the responsibility of the authors to ensure that the literature research is complete and correct.
- 10) The use of AI during the underlying investigations as assistance to improve productivity (e.g. during programming or data analysis) **is deemed acceptable but must be documented with great details**. The documentation includes which exact tools and versions were used and which parts of the work were they used for. Any potential impact on the results must be discussed by the authors, who ultimately are responsible for these results.

Failure to comply with these rules or attempts to circumvent them as well as failure to properly disclose the use of AI in the work **may result in rejection or withdrawal of the paper at any point of the process, even after the conference**. **For reviewers:** the same rules apply to the preparation of reviews of the submitted papers. The organisation team may use AI tools to check for undisclosed uses of AI.

Many of the AI tools currently available provide limited to inexistent data privacy. Authors are advised to be cautious with their inputs/prompts as many tools will keep a copy or even publish them with more or less anonymization. This means that copying chunks of text or other data to serve as input of such tools may require prior release by their employers or project partners.

## 7 Detailed Formatting Instructions

The styles and formats for the CEAS Conference on Guidance, Navigation and Control papers are provided hereafter. If you are using L<sup>A</sup>T<sub>E</sub>X, this template already defines all required styles to prepare your manuscript. Its use, with no modification, is highly recommended. A Microsoft Word template is also available. Regardless of which program you use to prepare your manuscript, please use the formatting instructions contained in this document.

These formatting instructions were developed with the aim of easing the reading of the papers on computer screens and tablets. To this aim a single column format is used with a fairly large font size (for scientific papers), slightly enlarged line heights, and combined with fairly small margins. Paragraphs are visually separated by indentation of the first line and by additional spacing between paragraphs. Whilst overall these measures tend to increase the number of pages needed for each paper, it is hoped that they will also convince a sufficient number of readers to not print the papers by providing them a better on-screen experience even on small tablets and large smartphones. The conference organisers



are welcoming feedback from the authors and the readers, based on which some parameters might be reevaluated for future editions of the conference.

If you use the electronic L<sup>A</sup>T<sub>E</sub>X template to format your manuscript, the correct formatting should be automatic. The sizes provided hereafter should only be relevant for authors who are not using L<sup>A</sup>T<sub>E</sub>X and who need to build their own template for their software (or format everything manually). Authors should not attempt to customise the template in any way.

## 7.1 Page Format

The paper must be prepared with the international standard A4 format as defined in the ISO 216 standard (210 × 297 mm). All pages must be in portrait format. Landscape format is not permitted at all. If necessary, some specific content (e.g. table or picture) can be turned by 90 degrees (preferably in anti-clockwise direction) but the pages in the PDF should remain in portrait mode.

Page margins are 2.0 cm for the top and bottom and 1.75 cm for the left and right. On the first page, an additional vertical space of 2.0 cm is inserted between the top margin and the manuscript title: this space is reserved for the organisers to insert the conference and paper information (paper number, how to cite the paper, etc.). **It is crucial that the authors do not use this space as any content placed in the top 4.0 cm of the first page will be masked by the conference and paper information that will be added afterward.**

In the electronic version of this template, all margins as well as other formatting is preset and should not be customised. Forcing a page break, e.g. through the command `\newpage`, is however acceptable if it improves the visual layout of the paper and if, as a rule of thumb, at least 75% of the page preceding the page break was already filled.

## 7.2 Standard Text

The default font for CEAS EuoGNC papers is Times or Times New Roman, 12-point size and with a line height of 14.4 points. For Word users: the line height has been implemented in form of a multiplicative factor of 1.15 in the Word template because this definition is more suited for the inherited properties in the styles that are based on the “Standard” style, whereas a fixed height of 14.4 pt would lead to problems for these derived styles.

The first line of every paragraph should be indented by 0.75 cm, and all lines should be single-spaced. A paragraph vertical separation of 6 pt should be used. As just defined the vertical separation between paragraphs are sufficient: no additional lines should be skipped between paragraphs.

## 7.3 Paper Title

The title of your paper should be typed in bold, 20-point type, with capital and lower-case letters, and centred at the top of the page.

Titles should ideally be both concise and precise. The title must reflect the content of the final paper: if over the course of the preparation of the final paper, modifications of the title appear useful to better reflect the final content of the paper, authors should contact the conference organisers with their submission or paper number, the old title, the proposed new title as well as a short justification for the requested change. Authors should avoid asking repeatedly for changes of the paper titles as this involves unnecessary work for the organisers.

## 7.4 Authors and Affiliations

The names of the authors, their job title, organization/affiliation, city, (whenever useful province/state) and country should follow on separate lines below the title. The author names should be in bold, 12-pt type font on the left and the remaining information on the right side in regular, 11-point type font. The L<sup>A</sup>T<sub>E</sub>X template provides a dedicated command for adding authors:

```
\addAuthor{First and last name of the author \orcidlink{insert orcid}}{  
  Job Title, Business/Academic Affiliation~\rorlink{https://ror.org/123456ab}  
  City, (State/Province), Country. \emailAddress{first.author@affiliation.com}  
  (if needed repeat for a further affiliation after inserting the \newline command)  
}
```

The width of the first column (where the author names are) should be set at 4 cm. The author may slightly change this value if 4 cm would cause a particularly unaesthetic layout, e.g. in the way the name of an author's name is split. The distance between the text of both columns (left the author names, right their job title and affiliation) should be 4 mm.

Apart from the addition of the ORCID and ROR links (cf. below), the affiliations have been simplified in the 2026 version of the template by removing Department and ZIP codes due to their limited added values in the current world (online presence, e-mail addresses for contacting authors).

### *ORCID and ROR numbers (new)*

Two new package dependencies have been added to the 2026 template to improve the matching of authors and affiliations within scholar databases. The package *orcidlink* is used to give the possibility of providing the ORCID number of each author after their name (see example on page 1 for proper use). The use of ORCID numbers allows for more reliable linking of the publications to specific authors. This is very useful as many universities and research organisations already provide ORCID numbers for their employees, but these number are linked to a specific author, not to a specific company. Authors who are not having an ORCID number yet can register on the website <https://orcid.org> and obtain their own ORCID number. The L<sup>A</sup>T<sub>E</sub>X command to add a small ORCID logo with the hyperlink to the ORCID profile is:

```
\orcidlink{0123-4567-8901-2345}
```

Similarly, ROR (Research Organization Registry) numbers allow uniquely identifying companies/affiliations to improve the link between work and publications to specific organisations (companies, universities, labs). The ROR website <https://ror.org> provides detailed information on the registry and allows searching for ROR numbers. The vast majority of the organisations whose employees have published in one of the previous EuroGNC conferences already have an ROR number, so the chances are high that you will find your organisation in the registry. A request form is available to create a new ROR number or to amend an existing one. Note that ROR numbers are not meant for sub-entities (e.g. specific department of a company or institute of a university), but to be a unique number for the whole organisation: do not try to find or register a specific part of your organisation! As an example, the L<sup>A</sup>T<sub>E</sub>X command for providing the ROR number of your organisation is (02gg0at36 is the actual number, in this case the one of CEAS):

```
\rorlink{https://ror.org/02gg0at36}
```

At the moment, most up-to-date L<sup>A</sup>T<sub>E</sub>X distributions provide the *orcidlink* package, but the *rorlink* package is fairly new and often not included. This is why it is included with this template (cf. file: *rorlink.sty*). Make sure to keep this file along with the template!

Contrary to other cases (e.g. DOI numbers in the BibTeX entries and the orcidlink command), the rorlink command expects a full URL: make sure to provide the full URL for ROR numbers as in the examples shown! Test the hyperlinks by clicking on them in the PDF before submitting your paper!

## 7.5 Abstract

An abstract is mandatory and should appear below the authors. It should typically be **between 200 and 400 words long** and not an introduction for the paper! The abstract should summarise the topic, the main objectives, **and the key facts, findings, and conclusions of the paper**.

The abstract should be understandable to any reader with reasonable background in the areas covered by the scope of the conference, not just by the specialists of the techniques used in the paper. Based on the title and the abstract, the reader should be able to know whether reading the paper is likely to be a good investment of his/her time. The abstract should be bold and expand on the entire text width.

References and footnotes are not allowed in the abstract. Do not use mathematical symbols unless absolutely necessary and avoid using acronyms.

## 7.6 Keywords

The authors should include between one and five keywords (each possibly composed of more than one word), separated by commas “,”. The keywords must be listed immediately after the abstract. Keywords are related to the content of the work, not where it was presented: **do not include CEAS EuroGNC as keyword!**

A new paragraph without indentation starting with term “**Keywords:**” in bold 11-point font introduces the comma-separated list of keywords in nonbold 11-point font. Note that a L<sup>A</sup>T<sub>E</sub>X command called \keywords is available and used in this example to introduce the list of keywords.

## 7.7 Nomenclature and Units

Papers with many symbols may benefit from a nomenclature list that defines all symbols, inserted between the abstract (or the keywords if used) and the introduction. If one is used, it must contain all the symbols used in the manuscript, and the definitions do not need to be repeated in the text. In all cases, identify the symbols used if they are not widely recognised in the profession. The standard notations recognised in the profession should preferably be used (see for instance the current versions of the ISO 1151 standard series for flight mechanical quantities [1–12]). Define abbreviations and acronyms in the text, not in the nomenclature (see section 7.8).

Symbols representing a physical quantity can be defined without providing a unit, e.g.  $m$  can represent the mass of an object regardless of its unit and equations like  $F = ma$  can be discussed and understood at a conceptual or symbolic level. As soon as numerical values are discussed or provided, the unit must be provided either in the nomenclature or wherever numerical values are provided (e.g., table, figure, text).

**It is strongly encouraged to use SI units throughout the paper.** Applications that were defined with other units (e.g. US Eng.) should provide wherever possible the corresponding SI conversions in addition to the original values. When some particular non-SI units are predominantly used, e.g. for altitude and airspeed in aviation, these units are tolerated especially when this results in simpler numerical values (e.g. 37 000 ft versus 11 277.6 m). Please also follow the instructions related to units in figures and figure labels in section 7.11.

For Euler angles and angular rates, prefer degrees to other units (especially radians) as they are easier to grasp for the reader. When other units are more common, use these units. For instance, the divergence of a laser beam is often expressed in mrad (milliradians).



## 7.8 Abbreviations and Acronyms

Define abbreviations and acronyms the first time they are used in the text, even after they have already been defined in the abstract. Very common abbreviations in aerospace such as NASA, ESA, DLR, ONERA, CNES, CEAS, AIAA, SI, AC, UAV, RPAS, etc. do not have to be listed in the nomenclature, but they can be defined at first use. Do not use abbreviations in the title unless they are unavoidable (for example, “CEAS EuroGNC” in the title of this document).

## 7.9 Section Headings

Level-1 headings (command `\section` with  $\LaTeX$ ) are bold 17-point font, flush left, and numbered with arabic numerals (1 2 3 etc.). An additional spacing of 18 pt should be used before and after level 1 headings (i.e., typically 24 pt separation from normal text).

Level-2 headings (command `\subsection` with  $\LaTeX$ ) are bold 14-point font, flush left, and numbered based on the number of the current level 1 heading and the level 2 heading number separated with a point (1.1 then 1.2 etc. for subsections of section 1). An additional spacing of 12 pt should be used before and after level 2 headings (i.e. typically 18 pt separation from normal text).

Level-3 headings (command `\subsubsection` with  $\LaTeX$ ) are italic 12-point font, flush left, and numbered following the same logic than for subsections (1.1.1 then 1.1.2 then 1.1.3 etc.). An additional spacing of 12 pt should be used before (but not after) level 3 headings (i.e. typically 18 pt separation from normal text as between two subsequent paragraphs).

Level-4 heading (command `\paragraph` with  $\LaTeX$ ) are normal 12-point font, flush left, and not numbered. An additional spacing of 12 pt should be used before (but not after) level 4 headings (i.e. typically 18 pt separation from normal text as between two subsequent paragraphs).

When followed by normal text, the vertical separation between level 1, 2, 3, or 4 headings and normal text should be 6 pt.

## 7.10 Equations

Equations are numbered consecutively, with equation numbers in parentheses flush right, as in Eq. (1). Insert a blank line above and below the equation. To insert an equation into the  $\LaTeX$  document, use the `\begin{equation}...\end{equation}` command environment. When related equations are written in consecutive lines, these equations should be aligned to visually represent the relationship between them. Make sure that the symbols in your equation are defined before the equation appears (possibly in the nomenclature), or immediately following the equation.

Do not refer to equations only by their numbers between parentheses “(11)” but rather as “equation (11)”. The abbreviation “Eq. (10),” (or “Eqs.” when referring to more than one scalar equation) can be used except at the beginning of a sentence. If you use these abbreviations, remain consistent throughout the paper, e.g. do not write sentences like “. . . the criterion given in Eq. (1) combined with the penalty term from equation (3). . .”.

As  $\LaTeX$  and Microsoft Word “equations” can be used to write other types of mathematical expressions (e.g. inequality, optimization problem, etc.), use the appropriate term and with no abbreviation in place of “Eq. ”. For example, the text could read: “A controller  $K$  minimizing the cost function  $J$  defined in Eq. (1) while satisfying the linear matrix inequality (12) and the equality constraints (13-15). Avoid using the abbreviations “Eq.” or “Eqs.” with additional qualifiers, e.g. write “Riccati equation (2)” rather than “Riccati Eq. (2)”.

A few sample equations with the surrounding text are provided hereafter (in blue), formatted using the preceding instructions.

In order for the closed-loop system to follow the desired reference dynamic model  $\dot{x} = A_d x + B u$ , the control design problem is formulated based on the linear-quadratic implicit model following criteria  $J$ :

$$J = \int_0^{+\infty} (\dot{x} - A_d x)^T (\dot{x} - A_d x) dt$$

$$= \int_0^{+\infty} x^T \underbrace{(A - A_d)^T (A - A_d)}_Q x + \tilde{u}^T \underbrace{B^T B}_R \tilde{u} + 2x^T \underbrace{(A - A_d)^T B}_S \tilde{u} dt. \quad (1)$$

The solution which minimises the cost function  $J$  is the control law  $\tilde{u} = K_c x$  with  $K_c = -R^{-1}(B^T X + S^T)$  and  $X$  being the solution of the Riccati equation (2).

$$A^T X + X A - (X B + S) R^{-1} (B^T X + S^T) + Q = 0 \quad (2)$$

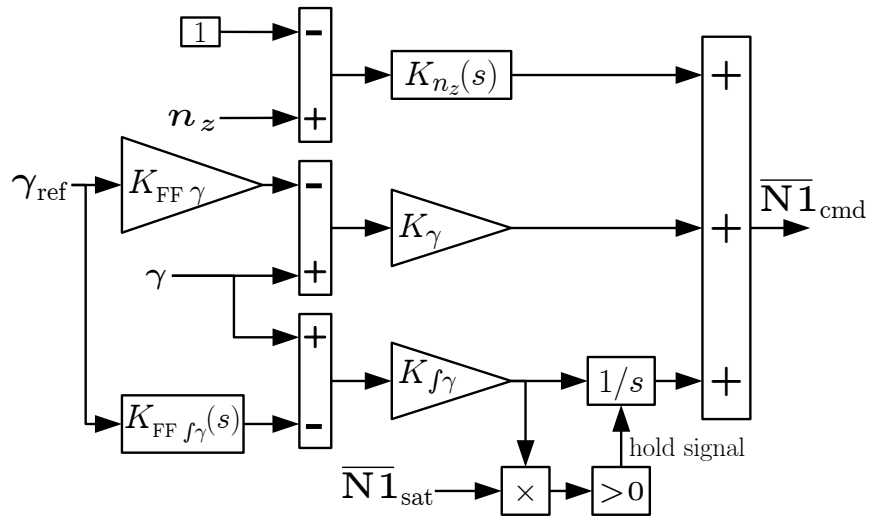
$$\Leftrightarrow (A^T - S R^{-1} B^T) X + X (A - B R^{-1} S^T) - X B R^{-1} B^T X + Q - S R^{-1} S^T = 0 \quad (3)$$

Note that in the case of equation (1), only one number is given to these two equations (using the split environment) as they simply show a derivation of the same expression. Here the first one makes the idea underpinning the expression clear and the second one puts the linear-quadratic structure of this expression into relief. If the text does not refer specifically at one of these ways to write  $J$ , then it is not required to number each separately.

## 7.11 Figures, Graphs, and Tables

Figures, graphs, and tables will be reproduced exactly as submitted. Be sure to position any figures, tables, graphs, or pictures as you want them to appear in the final paper / PDF file. Authors are responsible for ensuring that no copyright-infringing material is included (see section 3).

The layout of the paper should be suited for on-screen reading of the paper: Do not place all figures and tables at the end of the paper but as close as possible to the portion of the text where they are commented and referred to. The L<sup>A</sup>T<sub>E</sub>X template makes use of the hyperref package which inserts internal hyperlinks between cross-references to figures and tables (as well as sections, equations, and references) and their exact location in the PDF file. These links are however one-way links and readers might need to scroll for going back to the text, at least unless their PDF viewer provides a “previous view” navigation feature. Locating figures/tables close to the corresponding portion of the text improves the on-screen reading experience.



**Fig. 1 Flight path angle ( $\gamma$ ) longitudinal control law**

In  $\text{\LaTeX}$ , do not insert your tables and figures in text boxes. As shown with Fig. 1 the environment `wrapfigure` can be used to insert a figure on the side of the text. With Microsoft Word, depending on the version used, use the “Insert Caption” feature (see for instance here) or with older versions of Microsoft Word “frames” and “text boxes” might be helpful for ensuring a more robust layout of the paper. In the  $\text{\LaTeX}$  template, use the “caption” command to type caption text. The figure title must always be placed below the figure and preceded by “Fig. 1” (“Fig.” + non-breaking half-space + figure number). A single tab should be inserted between the figure number and the figure title. This formatting is automatic with the `\caption` command of the  $\text{\LaTeX}$  template. A non-breaking space instead of a non-breaking half-space is acceptable. Subfigures can be used and should be numbered with the following pattern “a)”, “b)”, etc. followed, when necessary, by a subtitle.

Table titles follow the same rules than figure titles except that they must be placed above the table and start with “Tab.” instead of “Fig.”. Make sure that the layout of the tables and their content eases its comprehension. For instance in Tab. 1 the numbers were formatted such that all decimal points, exponents, and sign symbols are aligned to ease the reading. The number of digits shown should not be exaggeratedly large, e.g. do not show experimental data with 10 significant digits if the measurement error is in the order of 1%.

Make sure to use very clear labels for figure axes, graphs, and table column/row-heads. These labels must use only terms that are well defined in the paper. It must be clear what is included or not included and which cases are shown. Figures should have no background, borders, or outlines. The use of colour for figures is allowed and recommended as it can help to make the content more appealing and readable. However, the colours (brightness and saturation levels) should be chosen such that they can be well distinguished when the paper is printed in black and white. Colours are not a substitute for minimum line thickness and line types (plain, dashed, dash-dotted, etc.) and markers. Be aware that readers might have poorly calibrated displays, printers, or projectors: the more robust the choice of colours and line styles, the better. When reusing the figures from the paper for the presentations, having made a robust choice of colours and line styles helps preventing the (too) common situation where the presenter can see and distinguish the curves on his/her laptop display but the audience cannot.

In figures and diagrams, bright text with dark background (e.g. in boxes and diagrams) should be avoided, due to the enormous ink consumption that they would cause if printed. Note that, in most cases, such choice of colours provide no real added value to the presentation of the content.

**Table 1 Eigenvalues of the open-loop system**

Eigenvalue	Damping ratio [-]	Frequency (rad/s)
$-3.55 \text{ E} - 02 + 8.65 \text{ E} - 01 i$	$4.10 \text{ E} - 02$	$8.65 \text{ E} - 01$
$-3.55 \text{ E} - 02 - 8.65 \text{ E} - 01 i$	$4.10 \text{ E} - 02$	$8.65 \text{ E} - 01$
$-7.20 \text{ E} - 03 + 2.53 \text{ E} - 01 i$	$2.84 \text{ E} - 02$	$2.53 \text{ E} - 01$
$-7.20 \text{ E} - 03 - 2.53 \text{ E} - 01 i$	$2.84 \text{ E} - 02$	$2.53 \text{ E} - 01$

Captions must be descriptive and concise. Make the figures, graphs, and tables as self-contained as reasonably possible. Any required additional description should be given in the caption, unless this would excessively increase the size of the caption. Note that figures and tables should be commented and interpreted in the text, not in the caption.

Square brackets [ ] for delimiting units should be prevented, as square brackets are usually used for physical dimensions (e.g. Length, Mass, etc.). Units can be introduced in one of the following ways:

- using a comma and/or the word “in”, e.g. “ $m$  in kg”, “ $m$ , in kg”, or “ $m$ , kg”
- using round parentheses and possibly with the word “in”, e.g. “ $m$  (kg)” or “ $m$  (in kg)”.

In order to avoid confusions, the way units are introduced can be adapted between different figures or tables of the paper, but it should be the same within each figure and table.

Note that units can be used and are often needed for dimensionless quantities. Angles are a typical example. They have no physical dimension, but can be expressed with various units, e.g. in radians, degrees, or gradians. Although most authors are precise on whether they use radians or degrees for angle numerical values, too often derived quantities are less consistently used. For instance, an angular frequency in ‘rad/s’ should never appear with the unit ‘1/s’ or ‘-/s’.

Note that unit symbols should never be written with the mathematical font or in italic/slanted shape. This way, the symbol  $m$  (mass) can be distinguished from the unit m (meters). Subscripts or superscripts consisting of an abbreviation should be written with the normal text font type. For instance a “reference acceleration” would be written  $a_{\text{ref}}$  and not  $a_{ref}$ .

**All text in figures (label and any other text) must be legible and no smaller than 10-point type.** This corresponds to the size of the subscripts “ref” and “sat” in Fig. 1.

Vector graphics should preferably be used over bitmap images, especially for graphs, plots, and block diagrams. Block diagrams extracted from a Simulink model (or any similar graphical tool) are often hardly readable. Authors should take the time to draw and export them as vector graphics with sufficiently large font size, line thickness, and arrow-head size.

## 7.12 Quotes

Extended quotes, such as the following example, are to be used when material being cited is longer than a few sentences, or the standard quotation format is not practical. In this L<sup>A</sup>T<sub>E</sub>X template, the appropriate command environment is `\begin{quoting}... \end{quoting}`. For authors who are not using the L<sup>A</sup>T<sub>E</sub>X template, extended quotes are to be in the same font, 11-point in size, with no indentation, with reduced text width (1.0 cm additional margins both left and right), and justified.

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The “quoting” environment adds an vertical spacing of 4 pt automatically before and after the quote, leading to a total vertical separation of 10 pt.

## 7.13 References and Footnotes

### 7.13.1 References

All references should be listed in a “References” section (not numbered) at the end of the paper (sorted by order of citation in the text). Bracketed numbers, e.g. “[1]” should be used in the “References” section and when citing a single paper. For multiple citations, separate reference numbers with commas [4, 7], or use a dash to show a range [5–7]. At the beginning of sentences or if the reference numbers in bracket could be confusing (e.g. in equations) references should be introduced by the word “Ref.” respectively “Refs.” followed by a non-breaking space “~” in L<sup>A</sup>T<sub>E</sub>X or with the shortcut “Ctrl+Shift+Space” in Word.

A BibTeX style file is provided and should be used. It is derived from the well-known and freely available `unsrt` BibTeX style. One of the main modifications is that it supports the “doi” field for all

citation types. Please provide only the DOI number in that field (e.g. just `10.1007/s13272-017-0240-9` for Ref. [13]) and not the full hyperlink: BibTeX will automatically create the corresponding hyperlinks.

Discussions with peers and non-permanent webpages (e.g., company site, product page, etc.) should not be cited as references but rather as footnotes.

References to publications in the English language should be preferred, but when this cannot be avoided, references to publications in other languages are acceptable. In such cases, the title should be formatted as follows: “A Translated Title in English (original title: The Original Title in the Foreign Language)”. Make sure that the capitalization rules for titles in the corresponding foreign language are used for the original title.

The following references show the formatting of different types of references:

- See the entry for Ref. [13] for an example of journal article.
- See the entry for Ref. [14] for an example of book.
- See the entry for Ref. [15] for an example of PhD thesis.
- See the entry for Ref. [16] for an example of conference paper. In the example BibTeX file, the cross-reference function of BibTeX is used. Its use is not mandatory but recommended as it permits to define the proceedings of a conference or a specific book only once, which reduces the amount of duplicate information in your `.bib` file and ensures the consistency of the references when citing several papers from the same conference or chapters from the same book. Note that the parent entry (here the proceedings or book) must be located after the entries that refer to it in the `.bib` file.
- See the entry for Ref. [17] for an example of technical report (here of type “NASA Technical Memorandum”).

Note that for aesthetic reasons, the bibliography style automatically transforms all but the first letter of the title into lowercase. If this behavior must be prevented for some letters (e.g. due to a name or acronym), this behavior can be locally disabled by using additional curly braces `{ }`. For example, the title of [13] was written as follows:

```
{In-flight remote sensing and identification of gusts,  
turbulence, and wake vortices using a {D}oppler {LIDAR}}
```

in order to prevent the letter “D” of Doppler and the acronym “LIDAR” from being converted to lowercase. Protecting the entire title instead of just a few letters and acronyms using double curly braces and the beginning and end of the title (i.e. `{{` and `}}`) is not recommended.

For addresses and locations in the USA and any other country where it is commonly required to distinguish between places with the same name use the format “City, State Name or Abbreviation, USA”, e.g. “Atlanta, GA, USA” and neither “Atlanta, Georgia” nor “Atlanta, USA”. This applies only for the countries where it is common practice to name the city with the corresponding state or region, e.g. simply write “Paris, France” and not “Paris, Ile-de-France, France” or similarly write “Munich, Germany” and not “Munich, Bavaria, Germany”.

In the past, various issues with references were found (incomplete, typos, unprotected uppercase letters or acronyms), so additional hints are provided hereafter.

Although most authors of papers from the previous conferences have used the DOI and ISBN fields extensively, a number of references were identified while processing the papers of the previous editions (e.g., for DOI registration) for which DOI or ISBN numbers did in fact exist but had not been indicated. Providing these numbers is very helpful for the readers and also for robustly linking academic publications in scholar databases (bases for citation counts and various publication metrics). Do take the time to search whether the references that you cite possess such numbers and provide them if they exist!



Here is a non-exhaustive list of cases for which references were found to be incomplete or erroneous in the past:

- References for **books** are often incomplete. The vast majority of books published since the 1970s have an ISBN number, but they tend not to be provided. The ISBN number often is specific to an edition and format (e.g., paperback, e-book), but often ISBN and year provided do not match: for instance, an ISBN number from the second edition of the book from 1998 but the year cited was 2006, which corresponds to the third edition. Such inconsistencies are often harmless, but sometimes the exact edition cited is important, as the specific content cited may have been added or deleted between editions. Nowadays, publishers often provide DOI numbers for the books that they publish, in addition to ISBN numbers, and often they remain the same over time (do not change with editions and publication format). Whenever a DOI for the book is available, provide it in addition to the ISBN number! Such DOI numbers have also been registered for many older books: do take the time to search online whether that is the case for the books cited in your paper!
- Many conference papers are assigned DOI numbers some time after the conference, which the initial proceedings (e.g., provided on an USB stick) may not contain. In particular, papers published at **conferences sponsored by IEEE, IFAC, and many others have DOI numbers**: they usually can easily be found online. Do provide them whenever possible!
- **Journal articles** almost always have a DOI number. Providing the journal name, volume, and number is useful, but the DOI number makes it quicker to find for the reader.
- **EuroGNC 2024 papers** also have DOI numbers (cf. [online paper library](#)). The papers from the 2011, 2013, 2015, and 2017 were included in a proceeding book (published by Springer), and also have DOI numbers as *book chapters*. Registering DOI numbers for the EuroGNC 2019, EuroGNC 2022, as well as for the papers from the earlier editions which were not included in the Springer book is being considered.
- When citing a **book chapter**, a specific DOI number might exist for each chapter. For instance, Springer often created chapter-by-chapter DOI numbers, usually adding “\_X” as suffix to the DOI number for the whole book (X being the number of the chapter). When citing only a chapter, prefer using the DOI number for that specific chapter, if available.
- **arXiv**: Work published on arXiv may be draft / pre-review versions of final works already published. Prefer citing the final version rather than the draft version. When citing from arXiv, note that a DOI number is also assigned by arXiv and should be provided.
- Many academic theses (e.g., MSc, PhD) but also some conference papers that are sometimes hard to find are available on online libraries/repositories with stable URLs and sometimes even DOI numbers. If available, provide the DOI number, but otherwise use the “url” field of the BibTeX style to provide this URL.
- **ACM papers and DOI-like links**: Be aware that some providers (e.g., ACM) sometimes provide links which seem to be based on a DOI number, but without this DOI number being officially registered and resolvable via the DOI services. For example, such links may look like [https://dl.acm.org/doi/10.xxxx/some\\_identifier](https://dl.acm.org/doi/10.xxxx/some_identifier). Even if the links says “doi” in the middle, if it cannot be resolved on the website <https://doi.org>, then it should not be placed in the “doi” field of the BibTeX entry. In such cases, the full URL should be provided in the “url” field.

**Make sure to proofread the entire list of references (spelling, lowercase/uppercase, missing information). Check all hyperlinks by clicking on it! Do not provide a separate URL, if you provide a DOI number. If no DOI number is provided: make sure to search online if this reference really does not have a DOI number. Provide ISBN for books (unless too old to have one) and DOI number if available! If no DOI exists, try to find the next best thing: an URL.**

### 7.13.2 Footnotes

Footnotes should be placed above the 2.25 cm margin at the bottom of the page, where they were inserted and numbered with arabic numbers starting with “1” and increasing throughout the paper (not starting with “1” again at each page). The standard `\footnote` command of L<sup>A</sup>T<sub>E</sub>X should directly provide the correct behavior.

## 8 Conclusions

A *Conclusions* section is not required, though it is preferred. Although a *Conclusions* section may review the main points of the paper, **do not replicate the abstract as the conclusions**. Conclusions may elaborate on the importance of the work or suggest applications and extensions. Note that the *Conclusions* section is the last section of the paper that should be numbered. The *Appendix* (if present), the *Acknowledgments* (if present), the *Declaration of Use of Artificial Intelligence*, and the *References* sections should be listed without numbers.

## Appendix

An *Appendix*, if needed, should appear before the *Acknowledgments* section or the *Declaration of Use of Artificial Intelligence* if no *Acknowledgments* section is included.

## Acknowledgments

An *Acknowledgments* section, if used, **immediately precedes** the *Declaration of Use of Artificial Intelligence* section. Sponsorship information and funding data are included here.

## Declaration of Use of Artificial Intelligence

A section called “Declaration of Use of Artificial Intelligence” section **is mandatory and should immediately precede** the *References*. If the authors did not use artificial intelligence, neither in the work itself nor in the preparation of the manuscript, then the following sentence is sufficient “Artificial intelligence was not used in the work presented.”.

**Make sure to carefully read the section related to the CEAS EuroGNC AI Policy (section 6 p. 4) before writing the paper and writing this section.**

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