Carmen Amo Alonso

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Research Interests

- Robust and Distributed Optimal Control, Convex Optimization, Parallel Programming.
- Mathematical Linguistics, Computational Linguistics.

Education

California Institute of Technology — Pasadena, CA
Ph.D. in Control and Dynamical Systems — *2017 – Present*

- *Advisor*: John C. Doyle
- *Thesis topic*: "Distributed and Localized Model Predictive Control and its applications to extending Flux Balance Analysis"

California Institute of Technology — Pasadena, CA
M.Sc. in Space Engineering — *2016 – 2017*

Polytechnic University of Madrid — Madrid, Spain
B.Sc. in Aerospace Engineering — *2012 – 2016*

Selected Research Experience

Control and Dynamical Systems, California Institute of Technology — Pasadena, CA
Graduate Research Assistant with Dr. John Doyle — *2017 – Present*

Space Propulsion Laboratory, Massachusets Institute of Technology — Cambridge, MA
Undergraduate Research Assistant with Dr. Manuel Martinez-Sanchez — *Winter 2016*

Applied Mathematics Department, Polytechnic University of Madrid — Madrid, Spain
Undergraduate Research Assistant with Dr. Ignacio Gomez — *2015-2016*

Computational Mechanics Group, California Institute of Technology — Pasadena, CA
Undergraduate Research Assistant with Dr. Michael Ortiz — *Summer 2015*

Turbocharger Research Group, Imperial College of London — London, UK
Undergraduate Research Assistant with Dr. Ricardo Martinez-Botas — *Summer 2014*

Teaching and Mentoring Experience

Undergraduate Mentoring, California Institute of Technology — Pasadena, CA
Mentor of summer student Sabina Gutheim — *Summer 2019*

Undergraduate and Graduate Teaching, California Institute of Technology — Pasadena, CA
Teaching Assistant of CDS 231 (Robust Control Theory) — *Winter 2020*
Head of Teaching Assistants of ACM 95/100 (Introductory Methods of Applied Mathematics) — *Winter 2019*
Head of Teaching Assistants of ACM 116 (Introduction to Probability Models) — *Fall 2019*
Teaching Assistant of ACM 95/100 (Introductory Methods of Applied Mathematics) — *Winter 2018*

Selected Honors and Awards

Amazon AI4Science Fellowship	*2020*
D.E. Shaw Exploration Fellowship	*2019*
Foster and Coco Stanback Fellowships in Engineering and Applied Science	*2016*
UPM-MIT Exchange Fellowship	*2016*
Undergraduate Research Collaboration Fellowship - *Awarded by the Department of Education of Spain*	*2015*
Summer Undergraduate Research Fellowship - *Awarded by California Institute of Technology*	*2015*
Undergraduate Researcher Fellowship - *Awarded by Polytechnic University of Madrid*	*2015*
Undergraduate Research Opportunity Program - *Awarded by Imperial College London*	*2014*
Gold Medal at the XXV Competition of Young Researchers in Spain	*2012*
University Access Exam Excellence Award - *Awarded by the Department of Education of Madrid*	*2012*

Conference Publications

[C1] **C. Amo Alonso** and S.-H. Tseng, "Effective GPU Parallelization of Distributed and Localized Model Predictive Control," in Submitted to *Proceedings of the 60th IEEE Conference on Decision and Control*. IEEE, 2021

[C2] **C. Amo Alonso**, J. S. Li, N. Matni, and J. Anderson, "Robust Distributed and Localized Model Predictive Control," in Submitted to *Proceedings of the 60th IEEE Conference on Decision and Control*. IEEE, 2021

[C3] J. S. Li, **C. Amo Alonso**, and J. C. Doyle, "MPC without the computational pain: The benefits of SLS and layering in distributed control," in *Proceedings of the 2021 IEEE American Control Conference*. IEEE, 2021

[C4] **C. Amo Alonso**, N. Matni, and J. Anderson, "Explicit Distributed and Localized Model Predictive Control via System Level Synthesis," in *Proceedings of the 59th IEEE Conference on Decision and Control*. IEEE, 2020

[C5] **C. Amo Alonso** and N. Matni, "Distributed and Localized Model Predictive Control via System Level Synthesis," in *Proceedings of the 59th IEEE Conference on Decision and Control*. IEEE, 2020

[C6] S.-H. Tseng, **C. Amo Alonso**, and S. J. Han, "System Level Synthesis via Dynamic Programming," in *Proceedings of the 59th IEEE Conference on Decision and Control*. IEEE, 2020

[C7] **C. Amo Alonso**, D. Ho, and J. M. Maestre, "Distributed linear quadratic regulator robust to communication dropouts," in *Proceedings of the 21st World Congress of the International Federation of Automatic Control*. IFAC, 2020

[C8] N. Olsman, **C. Amo Alonso**, and J. C. Doyle, "Architecture and trade-offs in the heat shock response system," in *Proceedings of the 57th IEEE Conference on Decision and Control*. IEEE, 2018

Academic Service

Peer Reviewer
IEEE Conference on Decision and Control, IEEE American Control Conference