Pavlos Protopapas | Curriculum Vitae

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Education

Imperial College, University of London — **London, UK**
B.S. in Physics — *1990*

University of Pennsylvania — **Philadelphia, PA**
Ph.D. in Physics — *1996*

Appointments

Harvard, School of Engineering and Applied Sciences — **Cambridge, MA**
Scientific Program Director, Institute for Applied Computational Science — *2013–present*

NASA/ADS
Interim Project Scientist for Data Science — *2021–present*

Harvard, School of Engineering and Applied Sciences — **Cambridge, MA**
Lecturer — *2009–present*

Harvard Smithsonian Center of Astrophysics — **Cambridge, MA**
Senior Scientist — *2003–2013*

University of Pennsylvania — **Philadelphia, PA**
Associate Director of the National Scalable Project — *1999–2003*

Teaching

2024: **PINNs**, Physics Informed Neural Networks (Short course)
2016–2024: **CS109A**, Introduction to Data Science
2018–2024: **CS109B**, Advanced Data Science
2023: **AC215**, Productionizing Large Language Models
2015–2017, 2023: **AC297R**, Capstone Research Project Course
2011–2014: **AM207**, Stochastic Optimization Methods

Educational Activities

2010–present: Lead Faculty, **Harvard-Chile Data Science School**
2016–present: Lead Faculty, **Harvard-Polimi Course Collaboration**
2012–2024: Lead, **IACS Compute Fest**
2011–2013, 2023–2024: Founding Faculty, **La Serena Data Science School**

Student Mentoring

Ph.D. Advising: 8
M.Sc. Advising: 43
Independent Studies: 12 (2015–present)

Grants

2016, 2018: **DRCLAS: Data Science for Astronomy**

2008: **NSF III-CXT-Medium**: Interdisciplinary Machine Learning Research

2007: **NASA**: New Methods in Data Mining for Time-Domain Astronomy

2007: **NSF SEI (IIS-0713273)**: Discovering Unexpected Astronomical Phenomena

Invited Talks (Last 3 Years)

2024: International Conference in Computational Science, **Pucon, Chile**

2023: Astro Statistics Seminar, **Harvard Statistics**

2023: Computational Science Seminar, **Harvard SEAS**

2022: Physics Seminar, **Barcelona**

Selected Publications (Last Two Years)

Bea, Y., Jiménez, R., Mateos, D., Liu, S., **Protopapas, P.**, Tarancón-Álvarez, P., Tejerina-Pérez, P. (2024). *Gravitational duals from equations of state*. Journal of High Energy Physics, 2024(7), 87.

Carter, J., Mancoridis, S., **Protopapas, P.**, Galinkin, E. (2024). *IoT Malware Data Augmentation using a Generative Adversarial Network*. HICSS 2024: 7572-7581.

Carter, J., Mancoridis, S., **Protopapas, P.**, Galinkin, E. (2024). *Behavioral Malware Detection using a Language Model Classifier Trained on sys2vec Embeddings*. HICSS 2024: 7582-7591.

Chantada, A.T., Landau, S.J., **Protopapas, P.**, Scóccola, C.G., Garraffo, C. (2024). *Faster Bayesian inference with neural network bundles and new results for ΛCDM models*. Physical Review D 109 (12), 123514.

Mohan, A., **Protopapas, P.**, Kunnumkai, K., Garraffo, C., Blackburn, L., et al. (2024). *Generating images of the M87* black hole using GANs*. Monthly Notices of the Royal Astronomical Society 527 (4), 10965-10974.

Lei, W., **Protopapas, P.**, Parikh, J. (2023). *One-Shot Transfer Learning for Nonlinear ODEs*. arXiv preprint arXiv:2311.14931.

Moreno-Cartagena, D., Cabrera-Vives, G., **Protopapas, P.**, Donoso-Oliva, C., et al. (2023). *Positional Encodings for Light Curve Transformers: Playing with Positions and Attention*. arXiv preprint arXiv:2308.06404.

Carter, J., Mancoridis, S., **Protopapas, P.** (2023). *Optimal data sample length for system call traces for malware detection in an IoT ecosystem*. 2023 3rd International Conference on Electrical, Computer, Communications and Electronics Engineering.

Liu, S., Huang, X., **Protopapas, P.** (2023). *Residual-based error bound for physics-informed neural networks*. Uncertainty in Artificial Intelligence, 1284-1293.

Chantada, A.T., Landau, S.J., **Protopapas, P.**, Scóccola, C.G., Garraffo, C. (2023). *Cosmology-informed neural networks to solve the background dynamics of the Universe*. Physical Review D 107 (6), 063523.

Mattheakis, M., Joy, H., **Protopapas, P.** (2023). *Reservoir Computing for Solving Ordinary Differential Equations*. International Journal on Artificial Intelligence Tools 32 (01), 2350030.

Astudillo, J., **Protopapas, P.**, Pichara, K., Becker, I. (2023). *A Reinforcement Learning–Based Follow-up Framework*. The Astronomical Journal 165 (3), 118.

Donoso-Oliva, C., Becker, I., **Protopapas, P.**, Cabrera-Vives, G., Vishnu, M., et al. (2023). *ASTROMER - A transformer-based embedding for the representation of light curves*. Astronomy & Astrophysics 670, A54.

Allen, T., Grezes, F., Shapurian, G., Blanco-Cuaresma, S., Grant, C., et al. (2023). *ADS Machine Learning and Deep Learning Efforts*. American Astronomical Society Meeting Abstracts 55 (2), 177.37.

Complete publication list available at stellardnn.org