Severin Magel

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Education

Technical University of Munich (TUM) September 2022 – September 2026
Master of Science in Physics, Grade: 1.0 | US GPA 4.0/4.0 *Garching, Germany*

University of Melbourne July 2023 – November 2023
Semester Abroad as part of Master's, Grade: H1 | US GPA 4.0/4.0 *Melbourne, Australia*

Technical University of Munich (TUM) October 2019 – October 2022
Bachelor of Science in Physics, Grade: 1.3 | US GPA 3.7/4.0 | Top 5 % *Garching, Germany*

Research Experience

Harvard University April 2026 – October 2026
Visiting Researcher *Cambridge, MA, USA*
Machine learning and automated science research for neutrino telescopes in the Argüelles-Delgado lab

IceCube Neutrino Observatory | Master's Thesis January 2025 – January 2026
Thesis: *Where Tracks Begin: Deep Learning-Based Starting Track Event Selection in IceCube* *Garching, Germany*
Improved the signal efficiency of event selection in IceCube under Prof. Elisa Resconi

Technical University of Munich (TUM) May 2024 – October 2025
Student Research Assistant *Garching, Germany*
Deep learning and P-ONE hardware construction

Max Planck Institute for Astrophysics | Bachelor's Thesis March 2022 – October 2022
Thesis: *"Kissing Instability" in Very Low-Mass Stars: Physical and Numerical Uncertainties* *Munich, Germany*
Research on a periodic phenomenon in stellar evolution through numerical simulations of stellar interiors under Prof. Achim Weiss

Publications

[1] **S. Magel**, F. J. Yu, C. A. Argüelles. *CURTAIN: Towards a Foundation Model for Neutrino Telescopes.* NeurIPS 2026 Workshop on Representations for the Physical Sciences. arXiv:2610.30894 Oct 2026

[2] P-ONE Collaboration (incl. **S. Magel**). *Characterization of the R14374-10 photomultiplier tube for the Pacific Ocean Neutrino Experiment.* arXiv:2610.26299 Oct 2026

Talks and Posters

IAIFI Workshop (poster) | CURTAIN: Self-Supervised Representation Learning via Temporal Masking in Cherenkov Telescopes Aug 2026

Spring IceCube Collaboration Meeting (talk) | Starting Track Classification and Model Comparisons May 2025

DPG Spring Meeting (talk) | Precise Reconstruction of Neutrino Event Energy Using Deep Learning Apr 2025

Industry Experience

QuantCo December 2025 – March 2026
Deep Learning Intern *Zurich, Switzerland*
Developed probabilistic machine-learning models for health risk prediction using sequence modeling on large-scale insurance datasets

Staburo GmbH April 2023 – June 2023
Biostatistician Intern *Munich, Germany*
Designed and implemented statistical anomaly detection algorithms in R, leveraging distributional assumptions and outlier tests to flag inconsistent clinical trial data

Open Source Contributions

GraphNeT | *Python, PyTorch, PyTorch Lightning, Docker, GitHub Actions* September 2024 – Present
Main maintainer of GraphNeT, a collaborative open-source PyTorch framework for astroparticle physics research

Prometheus | *Python, CUDA, C++, GitHub Actions* May 2026 – Present
Added support for new particle detectors in end-to-end high-energy particle Monte Carlo simulation code

Awards and Honors

DAAD PROMOS scholarship | German Academic Exchange Service funding for Harvard visit April 2026 – October 2026

e-fellows.net scholarship | Merit-based scholarship and network for high-achieving students in Germany June 2024 – Present

WE Heraeus communication programme travel grant | Talk at DPG Spring Meeting April 2025