

Nicholas Fasano

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EDUCATION

Princeton University, Princeton, NJ

Expected May 2023

Doctor of Philosophy in Applied Physics, GPA: 3.683/4.0

Relevant Coursework: Machine Learning and Pattern Recognition

Syracuse University, Syracuse, NY

May 2017

Bachelor of Science in Aerospace Engineering

Bachelor of Science in Physics

Minor in Mathematics

Graduated Summa Cum Laude, GPA: 3.932/4.0

RESEARCH EXPERIENCE

Doctoral Researcher | Princeton University MAE

Sept. 2017 – May 2023

- Curated terabyte-scale datasets from numerical simulations of light-matter interactions, which I formally analyzed and visualized to extract physical insights and inform future experiments
- Led experimental campaigns using Princeton's 20TW laser system to investigate the effects of waveform-controlled engineering on laser-solid interactions, resulting in two conference presentations and a written manuscript
- Collaborated with research teams from Lawrence Livermore National Laboratory (LLNL) and the University of Michigan (CUOS group), assisting in setting up and conducting experiments

Undergraduate Researcher | Syracuse University MAE

June 2016 – Aug. 2016

- Researched and designed a 4-arc turbine blade section and then wrote a C++ program to generate the blade in the Engineering Sketch Pad, a 3D CAD software
- Deliverables included a C++ script to generate the turbine blade, a 5-minute presentation, and a 10-page technical report written in the style of an academic paper.

DATA SCIENCE PROJECTS (<https://github.com/nfasano>)

Recommendation system

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TECHNICAL SKILLS

Python (Numpy, Pandas, Scikit-Learn), Matlab, SQL (Microsoft Server), Linux command line, high performance computing, LaTeX, Excel, Word, PowerPoint,

LEADERSHIP AND TEAMWORK EXPERIENCE

Assistant in Instruction | Princeton University

Jan. 2018 – Jan. 2023

- Led problem-solving precepts, aided in project development, graded assignments, and held office hours. Courses taught: Aircraft Design, Mechanical Design, Thermodynamics, and Fluid Mechanics

Physics Coach | Syracuse University Physics Department

Sept. 2016 – May 2017

- Attended physics recitation and lab sessions for several undergraduate physics classes and assisted students by answering their questions and explaining the course material

Tutor | Syracuse University

Jan. 2017 – May 2017

- Tutored students individually or in small groups, covering topics in undergraduate physics, math, and engineering courses.

WORK EXPERIENCE**Engineering Intern | Cameron Engineering & Associates, LLP**

May 2015 – Aug. 2015

- Read and edited electrical and mechanical drawing plans using AutoCAD
- Performed on-site visits to survey and update electrical and mechanical engineering drawings

Maintenance | Piquet Lane Swim and Tennis Club

Summers 2013-2014

- Responsible for daily maintenance of tennis courts and other day to day operations of the club

CERTIFICATES**Teaching Transcript Program | McGraw Center for Teaching and Learning**

Dec. 2022

Andrew Ng's Deep Learning Specialization | Coursera

Sept. 2021

- Credential URL: coursera.org/verify/specialization/GA9QPDNUG6RB

Python for Data Science and Machine Learning Bootcamp | Udemy

Feb. 2021

- Credential URL: ude.my/UC-457a4c2d-3129-4238-b3b9-c476db07faad/

AWARDS**Fellowship | Program in Plasma Science and Technology**

June 2020 – May 2023

Gelling Award | Physics faculty of Syracuse University

May 2017

Excellence by Aerospace Senior | MAE faculty of Syracuse University

May 2017

Excellence by Aerospace Junior | MAE faculty of Syracuse University

May 2016

Excellence by Aerospace Sophomore | MAE faculty of Syracuse University

May 2015

Outstanding Academic Achievement by Aerospace Freshman | MAE faculty of Syracuse University
May 2014

SELECTED PUBLICATIONS AND PRESENTATIONSGoogle Scholar: scholar.google.com/citations?user=X9sdXuQAAAAJ&hl=en&oi=ao

- **N. M. Fasano**, M.R. Edwards, A. Giakas, et al., "Harmonic Generation by Cascaded Plasma Mirrors", in preparation.
- **N. M. Fasano**, M. R. Edwards, and J. M. Mikhailova, "Attosecond electron dynamics and emission in particle-in-cell simulations of relativistic laser--solid interactions," (2022). Under Review.
- **N. M. Fasano**, M. R. Edwards, A. Giakas, et al., "Low-Order Harmonics Emitted from Relativistic Plasma Mirrors Driven by Two-Color and Elliptically Polarized Lasers," APS DPP meeting, Bulletin of the American Physical Society, (2021). Oral.
- **N. M. Fasano** and J. M. Mikhailova, "High-Power Ultraviolet Vortex Beams Generated from a Relativistic Laser Interacting with an Ultrathin Foil," CLEO: Conference on Lasers and Electro-Optics, (2021). Oral.
- M. R. Edwards, **N. M. Fasano**, T. Bennett, et al., "A multi-terawatt two-color beam for high-power field-controlled nonlinear optics", Optics Letters **45**, 6542 (2020).
- M. R. Edwards, **N. M. Fasano**, and J. M. Mikhailova, "Electron-nanobunch-width-dominated spectral power law for relativistic harmonic generation from ultrathin foils", Physical Review Letters **124**, 185004 (2020).

