David Shustin

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New grad. Engineer and researcher working on physics, computing, and intelligent systems.

Education

Princeton University Class of 2024 **GPA** 3.93/4.00 **Expected Graduation** May 2024
Area of Study BSE Computer Science **Minors** Engineering Physics, Applied Mathematics
Selected Coursework Advanced Algorithm Design*; Graph Algorithms*; Extremal Combinatorics; Deep Learning Theory*; Systems Programming; Computer Architecture; Distributed Systems (* = graduate-level course)

Experience

Princeton University – Student Researcher, ML for Imaging and Structural Biology **Mar 2023 – Present**
- Researching novel machine learning methods for computational image processing, including implementing AI tooling for researchers and engineers. See publications.
- I am fortunate to be advised by Prof. Ellen Zhong (DRGN Lab) and Prof. Felix Heide (PCIL).

Skydio – Autonomy Infrastructure Engineering Intern, Infrastructure **Jun 2023 – Aug 2023**
- Built scalable developer tools for computer-vision-powered autonomous quadcopters.
- Implemented CI framework for robotics simulations using C++, Python, Bazel, and K8s.
- Enabled per-commit integrated unit testing for autonomy and computer vision stack.

Nuro – Autonomy Systems Intern **Jun 2022 – Aug 2022**
- Implemented efficient software tools to validate safety of autonomous delivery vehicles.
- Improved vehicle safety & perceptive response to on-road hazards using Python and C++.

Princeton Racing Electric – Chief Engineer, Business Representative **Sep 2020 – Jan 2023**
- Oversaw technical progress for student group building an electric Formula car.
- Solved ambitious technical and management problems, including designing high voltage power electronics, producing control boards, and writing embedded software.

Hackathon Hacker **May 2016 – Mar 2020**
- Developed a mechanized pill dispenser with novel tamper-proofing to prevent overdoses and unauthorized prescription usage. Project details available on Devpost.
- Built a lab assistant to log, categorize, and manage all actions taken in a laboratory setting using QR codes and a custom markup language. Project details available on Devpost.
- Implemented a "memory palace" simulation using Unity in order to assist students in difficult memorization tasks. Project details at available on Devpost.

Publications & Research

I. Chugunov, **D. Shustin**, R. Yan, C. Lei, F. Heide. Neural Spline Fields for Burst Image Fusion and Layer Separation.

Honors & Awards

Shapiro Prize @ Princeton University – Top 3% of undergraduates in academic achievement 2022
Shapiro Prize @ Princeton University – Received award twice, in sophomore and freshman year 2021
Manfred Pyka Prize in Physics @ Princeton University – 2021
Awarded for excellence in physics course work and promise in independent research
PennApps XX @ University of Pennsylvania – Top 10 Award (out of 242 submissions) 2019
HackRPI 2019s @ Rensselaer Polytechnic Institute – 1st place overall (out of 53 submissions) 2019
PennApps XVIII @ University of Pennsylvania – Top 30 Award (out of 202 submissions) 2018
HackNYU 2017 @ New York University - Best Educational Technology (out of 88 submissions) 2017

Skills

Computer Programming Python (Pytorch [Lightning]), C, C++, Golang, Web Development (JavaScript, CSS, React, NodeJS), Java, Bazel/Starlark, ARMv8 Assembly, Proficiency in Git and *nix-based operating systems.
Simulation & Manufacturing LTSpice, OpenFOAM, Fusion 360, PTC CREO, Altium Designer, CNC Mill, Laser Cut
Languages English and Russian (fluent), Spanish (conversational)