Nixon Hanna (he/him)

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EDUCATION

Massachusetts Institute of Technology **Sep. 2024 – May 2028**
B.S. in Physics and Mathematics *Cambridge, MA*

- **GPA: 5.0/5.0**
- **Relevant Coursework:** Quantum Physics I and II, Relativity, Differential Geometry, Classical Mechanics II
- **Extracurriculars:** Lecture Series Committee Chair, MIT Climbing Team Captain, Society of Physics Students

University of Nebraska—Lincoln **June 2021 – May 2024**
Visiting Student (Dual Enrollment) *Lincoln, NE*

- **Relevant Coursework:** Multivariable Calculus, Linear Algebra, Abstract Algebra, Ordinary Differential Equations, Partial Differential Equations, Modern Physics, Electromagnetic Theory

RESEARCH EXPERIENCE

MIT Kavli Institute for Astrophysics and Space Research **June 2025 – Present**
Undergraduate Researcher *Cambridge, MA*

- First-authored a paper (submitted to ApJ) introducing a new figure of merit for gravitational lensing model fits and using strong lensing phenomena to estimate gravitational potential centers for clusters of galaxies
- Presented as a Remote Contributor at the 2025 Scaling-up Lensing Workshop at the University of Liège

WORK EXPERIENCE

Virtual Incision **July 2021 – Aug. 2024**
R&D Engineering Intern *Lincoln, NE*

- Presented a company wide talk (~150 attendees) on Python and its effectiveness over other technologies
- Designed and deployed a Python toolkit enabling non-programmer engineers to effortlessly create robot control code and simulate kinematics from their desktops, now used by all departments for development and testing
- Headed various machine learning projects (e.g. surgery stage identification and autonomous suturing/surgery)
- Designed, simulated, and implemented a novel IMU pose estimation algorithm for a prototype surgical robot
- Conducted kinematic and workspace analyses and simulations of surgical robot for FDA certification
- Built a bootloader communication protocol for reflashing physically inaccessible control boards

TEACHING EXPERIENCE

Lux Middle School MATHCOUNTS **Sep. 2023 – May 2024**
Head Coach *Lincoln, NE*

- Selected and coached a 12-member team from 50+ students through structured tryouts and 2+ weekly practices
- Planned and led training with custom problem sets, bi-weekly practices, and intensive pre-competition sessions
- Coached team to 1st place finishes at both regional and state competitions, with standout individual achievements: 3 of top 4 and 7 of top 10 at regionals, and 2 of top 4 and 6 of top 10 at state.
- Appointed as Head Coach of the Nebraska State Team for the national competition

COMPETITION RESULTS

- **American Mathematics Competition:** 4x Honor Roll, 4x AIME Qualifier
- **National Science Bowl:** 2x State Champion, 17th place at National Competition (State Record)
- **UNL Math Day:** 3x Probe II Champion, 2x Math Bowl Tournament Champion, 5x Top 5 Placements
- **FBLA National Leadership Conference:** National Economics Objective Test Runner-Up

SKILLS & INTERESTS

- **Skills:** Python (~5,000 hrs), Data Analysis/Visualization, Machine Learning, C++, Public Speaking, Leadership
- **Interests:** Climbing, Blogging, Movies, Reading, Jazz, Soul, R&B, Piano, Physical Media, Stationary