Dr. Rees McNally

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EDUCATION

Columbia University (2015-2020)
Doctorate: Physics
Master of Science: Physics
Master of Philosophy: Physics

University of Colorado (2010-2014)
Bachelor of Science: Applied Mathematics
Bachelor of Science: Engineering Physics
Minor: Electrical Engineering

EXPERIENCE

Principal Scientist: Optical Engineering @ Areté Associates *Dec 2020 - Present*

- Technical lead for the Basilisk CUAS program, leading transitioning from a Phase-II army SBIR ($1.1 million) through low-rate production, with first units fielded in late 2025.
- Principal investigator (PI) for two Phase-II Space force SBIRs ($3.8 million) to develop a high performance airplane tracking camera, and a satellite tracking sensor.
- PI for a Phase-II AFRL SBIR ($1.25 million) to develop an event camera based satellite payload, first satellite payload flown by the company.
- PI for an Army contract ($1.8 million) to develop a tracking and localization system for incoming ordinance using high speed cameras. Follow on funding in negation currently.
- Proven success leading new business efforts, developing high performing teams, and interfacing directly with end users to learn what problems really matter. Led numerous proposals with a total acquisition value of >$10 million.

Graduate Research @ Columbia: Professor Tanya Zelevinsky *Dec 2015 - Dec 2020*

- Led the design and construction of a new machine to laser cool and study molecules.
- Founded and led (2016-2019) an ongoing biweekly graduate student seminar series to help graduate students improve presentation skills, and learn about other disciplines.
- Published 9 peer reviewed articles on a wide variety of topics over my academic career, including a new phenomenological signature for the direct terrestrial detection of dark matter.

Undergraduate Research *Aug 2010 - Jun 2015*

- **Professor Jun Ye:** Helped design and implement a next generation atomic clock, which is currently the most accurate clock in the world.
- **Lawrence Livermore National Lab:** Developed algorithms for data reconstruction from network of quantum sensors using Livermore's HPC cluster's.
- **AFRL/Colorado Space Grant:** Member of Integration and testing team for final spacecraft with AFRL facility prior to launch with SpaceX. Collaborated with aerospace R&D company ASTRA to demonstrate a new method to identify satellites from radar tracking data.

Patents

EVENT CAMERA BASED TRACKING OF ROTOR CRAFT (US2024046022)

Skills

- Software: Python, NumPy, SciPy, Pandas, Scikit-Learn, Keras/TF, MATLAB, Mathematica
- Identifying ways to apply cutting edge research to real world problems in a variety of fields.
- Connecting ideas from different fields, and people from different parts of the company.
- Technical writing for ideation, seeding, and new business capture.
- Program management/leadership for small/medium sized teams.
- Integration of R&D programs into wider corporate goals.
- "Very good at power-point but hates himself for it"

Awards

- 2014 CU Boulder's Fall Outstanding Graduate for Research, Graduating Summa Cum Laude
- 2016 "Audience Favorite" at the NYC's famous Abbey Pub mac and cheese competition
- 2017 NSF: IGERT Fellowship Award recipient
- 2019 Allen M Sachs Teaching Award for outstanding graduate student instruction
- 2021 through 2024 Areté New Business Capture Award