David Hopper, Ph.D.

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Objective

To leverage my seven years' experience in experimental physics, engineering, MATLAB, system design, and technical communication in a technical position in industry.

Experience

Postdoctoral Researcher 11/2019 – Present
University of Pennsylvania

- Lead an interdisciplinary team of quantum and electrical engineers working together to build systems-level solutions to quantum computing control problems
- Simulated complex photon time-of-arrival dynamics with a custom MATLAB package
- Managed design and construction of an ultra-high vacuum confocal microscope, requiring the management of multiple vendors, contractors, and project timelines
- Mentored 3 PhD students and one undergraduate student on various projects

Doctoral Student 7/2014 – 10/2019
University of Pennsylvania

- Discovered protocols to drastically improve the performance of spin qubits in diamond
- Implemented real-time control of a quantum system using a field-programmable gate array
- Developed a customized MATLAB software suite for remote experimental control, coordinating 10+ instruments with real-time data collection and visualization
- Co-created a decentralized academic journal. Winner of multiple hackathon awards (PennApps XVII) and a Pennvention 2018 startup competition finalist
- Provided guidance and feedback during in-class problem solving assignments for an introductory physics class
- Mentored 5 undergraduate students and 3 high school interns

Skills

Programming: *Experienced:* MATLAB (6+ years) *Familiar*: Python, Verilog, Embedded C/C++
Engineering Tools: Instrumentation, system integration, version control, numerical simulation and optimization, data analysis, numerical and analytical modeling.
Technical Communication: Author of 11 peer-reviewed scientific articles and one patent. Experienced presenter with seven international conferences and a startup competition.
Leadership: Experienced with leading and fostering communication on interdisciplinary teams. Departmental representative for the school of arts and sciences student government (2014). Treasurer and secretary of the Penn State cycling club, responsible for a $40,000 budget.
Mentoring: Proven experience mentoring PhD, masters, undergraduate, and high school students.

Education

University of Pennsylvania 7/2014 – 10/2019
Ph.D. in Physics, M.Sc. Physics
Dissertation: Preparing and Measuring Single Spins in Diamond

The Pennsylvania State University, Schreyer Honors College 8/2010 – 5/2014
B.Sc. Major: Physics, Minor: Mathematics