Katherine S. Copenhagen
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EDUCATION

Ph.D. in Physics, University of California Merced, Merced, CA, ... August 2017
Dean's distinguished scholar fellowship, CCBM Scholar
B.S. in Physics, University of California Merced, Merced, CA, ... May 2011

EXPERIENCE

Princeton University
Associate Research Scholar ..... Nov 2017 - Present

- Scalable 3D image processing using CuPy and self-developed CUDA kernels
- Simulation design to study emergent phenomena and pattern formation
- Near daily use of Bash scripting, vim, Python, C++, and Matlab, occasional use of C#
- Added custom functions to LAMMPs molecular dynamics simulation package to simulate the physics of living materials
- Extensive use of shared computing resources, queuing systems, scripting and batch jobs, and version control with github
- Created a database for all of our lab strains using SQL for sorting and look ups.
- Analyzed and interpreted large data sets
- Implemented machine learning, via *PyTorch*, to segment and track cells in dense populations
- Taught and mentored numerous undergraduate, masters, and PhD students

University of California, Merced
Graduate Researcher ..... Aug 2012 - Nov 2017

- Built and performed upkeep for shared computing cluster
- Designed and created simulations from scratch in *C++* for simulating physics of many individuals moving and interacting
- Visualized, analyzed and interpreted large sets of simulation output data using Python

COMMUNICATION

Public Speaking

- Presented at over 40 conferences and invited seminars across the world.

Team work

- Worked closely with experimentalists to develop simulations to capture and understand their experimental results
- Discussed and strategized at weekly group meetings research progress with my PI, other people in my lab and other research groups
- Teaching assistant for all levels of physics courses

OTHER INTERESTS / PERSONAL PROJECTS

- Designed and built a mobile game using Unity
- NERSC Open Hackathon, CUDA processing of massive image volumes nsight systems and nsight compute
- Unreal Engine 5
- Board game design
- Video games
- Disc golf, springboard diving, and viola