Ben Czaja

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Education

Ph.D., Computational Science — Amsterdam, the Netherlands
University of Amsterdam — *Jan. 2017 – Dec 2020*

Master of Science, Astronomy and Astrophysics — Innsbruck, Austria
University of Innsbruck – University of Padua – University of Göttingen — *Aug. 2014 – Sep. 2016*

Bachelor of Science, Physics — Salt Lake City, U.S.A.
University of Utah — *Aug. 2007 – Dec. 2012*

Experience

Ph.D. Research — Jan. 2017 – Present
University of Amsterdam

- Core developer for HemoCell which is two open sourced cell resolved blood flow fluid solvers using C++, Fortran, MPI, and Python that are deployed on high performance distributed computing facilities
- Core developer on a hierarchical multi-scale blood flood solver using C++ and Python
- Lead author on three peer reviewed scientific journal articles and co-author on three additional articles

Visiting Scholar — March 2018 – June 2018
University of Michigan

- Designed blood flow experiments using the HemoCell simulation software
- Conducted wet lab experiments studying the effects stiffened red blood cells in whole blood
- Lead author on the resulting publication in PLOS computational biology
- Designed cover image of the research project using Blender, which was selected for the March 2020 issue cover

Master Thesis Supervisor — Sep. 2018 – Aug. 2020
University of Amsterdam

- Conceived, organized, and was the daily supervisor on two master student thesis projects. Both Students graduated on time, and both projects resulted in submissions to peer reviewed journals
- Co-daily supervisor on a third master thesis project, which resulted in publication in a journal

Teaching Assistant — Sep. 2017 – Dec. 2019
University of Amsterdam

- Conducted lab sessions for master level Introduction to Computational Science Course
- Developed and graded two, month long, assignments. Each assignment comprised of a Jupyter Notebook and written report

Workshop Instructor — Sep. 2018 & Feb. 2020
Partnership for advanced computing in Europe (PRACE) training event
Barcelona Super Computing Center

- Instructor in workshop for PhD level researchers to get hands on experience with compiling, deploying, and visualizing output from parallel software on a HPC machine

Projects

HemoCell | *C++, Python, Slurm, HTML, CSS, Singularity* — Jan. 2017 – Present

- Developed multiple applications focused on solving physiological blood flow problems.
- Maintained Git repository for open source release as well as designed/created HemoCell2D website using HTML/CSS (www.hemocell.eu)

Technical Skills

Languages: Python, C++, C, HTML/CSS, Fortran, Bash
Frameworks/Libraries: HDF5, OpenCV, Bootstrap, Hugo
Tools: Git, Docker, Singularity, Sublime, Blender, Paraview