Wileam Yonatan Phan

+1 (865) 244-5042 · wileam@phan.codes · ORCID: 0000–0001–5621–5949

https://wyphan.github.io/ · https://linkedin.com/in/wileam-phan-389633206

Aspiring computational scientist / software engineer specializing in accelerated high-performance computing. Experienced in parallel computing (**MPI**, **OpenMP**) *and GPU programming* (**OpenACC**, **OpenMP**, **CUDA**, **ROCm**, **SYCL**). *Natural polyglot. Speaks* modern **Fortran**, **C**/**C++**, **Python**, **Bash** scripts, Tcl and Lmod modulefiles, LaTeX, *and others.*

Interests: high-performance computing · accelerated computing · performance analysis · computational material science
numerical algorithms · mathematics of arrays · compiler technology · embedded/single-board computers
emerging system architectures · bare-metal virtualization · container technologies · continuous integration

Education

2021 · **MS**, Physics · **University of Tennessee** · Knoxville, TN, USA

Advisor: Prof. A.G. Eguiluz (University of Tennessee)
Thesis: *Accelerating Dynamical Density Response Code on Summit and Its Application for Computing the Density Response Function of Vanadium Sesquioxide*

2014 · **BS**, Physics · **Universitas Indonesia** · Depok, Jawa Barat, Indonesia

Co-advisors: Dr. M.A. Majidi (Universitas Indonesia) and Prof. A. Rusydi (National University of Singapore)
Thesis: *Theoretical Study on the Effects of Substrate on the Optical Conductivity of Graphene*

Work Experience

June 2022 – present · **Research Software Engineer** · Rice University · Houston, TX, USA (remote)

- Member of development team for HPCToolkit profiling tools, part of Exascale Computing Project (ECP)
- Maintain HPCToolkit deployments at DOE open-science leadership computing facilities
- Lead application engagement activities to collaborate with developers of ECP application codes
- Collect feedback on HPCToolkit usage from ECP application teams
- Participate in GPU hackathons (ORNL, NERSC) as part of support vendor team
- Prepare and deliver user trainings and workshops
- Serve as ECP project coordinator for the HPCToolkit project
- Contribute to the research and development of HPCToolkit profiling suite for GPU-accelerated applications

March 2022 – present · **Research Software Engineer** · Sourcery Institute · Oakland, CA, USA (remote, contract)

- Isolated Fortran 2018/2023 implementation bugs in GFortran compiler and wrote reproducer codes
- Wrote Fortran 2018 standard compliance tests

March 2021 – June 2022 · **Research Assistant** · SUNY Albany · Albany, NY, USA (remote)

- Assisted the GPU porting process for codes based on Mathematics of Arrays

August 2020 – July 2021 · **Graduate Research Assistant** · University of Tennessee · Knoxville, TN, USA

- Developed and ported the Eguiluz research group "EXCITING-PLUS" DFT-based density response code to use NVIDIA GPUs using OpenACC and GPU libraries (MAGMA) targeting the Summit supercomputer (ORNL)
- Participated in the 2020 OLCF GPU Hackathon as member of team EECM
- Performed calculations with the ported code on Summit (ORNL) and Cori-GPU (NERSC)
- Achieved up to 12× speed-up over original CPU-only version

August 2016 – May 2020 · **Graduate Teaching Assistant** · University of Tennessee · Knoxville, TN, USA

- Taught physics laboratory sessions (both traditional and hybrid studio methods) for the following courses:
  - PHYS 221 Elements of Physics I (Fall 2017, Fall 2018, Spring 2019)
  - PHYS 222 Elements of Physics II (Spring 2017, Spring 2018, Fall 2019)
  - PHYS 231 Fundamentals of Physics I: Electricity and Magnetism (Fall 2016, Spring 2018)
- Graded for the following course:
  - PHYS 514 Problems in Theoretical Physics II (Spring 2020)

January 2011 – December 2015 · **Teaching Assistant** · Universitas Indonesia · Depok, Jawa Barat, Indonesia

- Appointed for the following courses:
  - FSK 20236 Electromagnetic Fields 1 (January 2011 to June 2013)
  - SCFI 603611 Solid State Physics 1 (August 2014 to December 2015)
  - SCFI 604021 Computational Physics 2 (August 2015 to December 2015)
- Held tutorials, proctored exams, and graded homework & exams