TRONG NGUYEN

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SKILLS

Computing

- Significant scientific programming experience with C/C++ and Python
- High performance computing: OpenMP, CUDA
- Git, Makefile, SCons, Linux, shell scripts

Web development

- Django, Flask
- Bootstrap, jQuery, CSS, HTML
- PostgreSQL, SQLAlchemy

Data analysis

- SQL, Pandas
- NumPy, SciPy, MatplotLib

Personalities

- Passionate about software development
- An academic researcher turned software developer
- A lifelong learner
- Hardworking attitude
- A team-worker

EDUCATION

Ph. D. in Mechanical Engineering

National University of Singapore

B. Eng. in Aeronautical Engineering

Ho Chi Minh City University of Technology

PUBLICATIONS/AWARDS

- "Modelling and analysis of insect-like flexible wings at low Reynolds number" - Journal of Fluids and Structures.
- Research scholarship, National University of Singapore.

PROJECTS

- Flyh: a C++ fluid simulation package, academic research code. Dev. time: 5yrs.
- khambacsi.com backend, frontend and database. Dev. time: 1yr.

EXPERIENCE

National University of Singapore — MAV Group

A computation and experiment group focused on aerodynamics of micro aerial vehicles (MAVs).

Research Fellow 4/2014 - 9/2016

- Main developer of a simulation software which is a mix of open-source systems and components built in-house in C/C++. Rewrote and greatly expanded a simple academic code into a multi-purpose, version-controlled, modularized codebase with documentations and setups.
- Developed algorithms specific to the field of fluid-structure interaction, which basically solved decoupled Navier-Stokes and Lagrange equations.
- Accelerated the computation performance with OpenMP - CUDA and gained roughly 10 fold speedup. Applied scientific tools (NumPy, MatplotLib) to process and visualize large, 3-dimensional datasets.
- Continuously communicated computation results to and obtained feedbacks from the experiment team, to reach KPI targets at year 3 and secured a 1-year extension.

Research Assistant 1/2011 - 3/2014

- Extended an Arbitrary Lagrangian Eulerian - Generalized Finite Difference scheme to tackle the aerodynamics of 3D flapping wings.
- Implemented a flow solver (measures 30.000 lines of C++ codes) with extended features which successfully produced results of 90% agreement with experiment and literature data.

Over the course of 5 years at NUS, I completely transformed from a coding enthusiast to a scientific software developer, able to write performant and maintainable codes.

Atlantic Technologies — Startup

A healthcare startup aims to help patients find doctors, constrained by health symptoms and practice locations.

Founder and Developer 5/2015 - 9/2016

- Built a website in 6 months, scope includes the backend (Django), database management and deployment (AWS). Contributed to the frontend (AngularJS).
- Carried out planning, coordinated logistics for a team of 5. Ran marketing campaigns with Facebook ads and Google Analytics. The site is active at khambacsi.com.