Leila Ghaffari

Curriculum Vitae

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Education

- **University of Colorado Boulder** — Boulder, CO
  PhD in Computer Science; anticipated graduation 2024 — *Aug. 2019 – Present*
- **Sharif University of Technology** — Tehran, Iran
  M.Sc in Chemical Engineering; GPA: 3.8 — *Sep. 2013 – Jan. 2016*
- **University of Tehran** — Tehran, Iran
  B.Sc in Chemical Engineering; GPA: 3.0 — *Sep. 2006 – Jan. 2011*

Experience

- **University of Colorado Boulder** — Boulder, CO
  Graduate Research Assistant — *Apr. 2020 - Present*

  Contributing to the development of libCEED, a new open-source mathematical software library for High-Performance Scientific Computing under the supervision of Jed Brown within the Center for Efficient Exascale Discretizations (CEED) of the Exascale Computing Project (ECP).

- **University of Colorado Boulder** — Boulder, CO
  Collaborating Researcher — *Apr. 2019 - Apr. 2020*

  Using PETSc, expanded a Navier-Stokes solver mini-app for compressible gas dynamics in a three-dimensional geometry in libCEED in collaboration with Kenneth Jansen.

- **Universite d'Avignon et des Pays du Vaucluse** — Avignon, France
  Intern — *Jan. 2017 - June 2017*

  Developed environmental-friendly chemical processes.

- **Sharif University of Technology** — Tehran, Iran
  Graduate Research Assistant — *Feb. 2014 - Jan. 2016*

  Designed a bioreactor for Sulfate reducing processes and studied the experimental consistency of the observations with theory.

- **Tehran Oil Refinery Company** — Tehran, Iran
  Intern — *June 2009 - Sep. 2009*

  Studied the Health, Safety and Environment (HSE) management of the Tehran Oil Refinery Company.

Technical Skills

- **Programming Languages**: C/C++, Python, R, MATLAB
- **Software and Tools**: Git, Make, Snakemake, Travis CI, Linux Bash, Valgrind, GNU Debugger, LaTeX, AutoCAD, SOLIDWORKS, ChemCAD, Aspen HYSYS
- **High-Performance Computing**: Intel Advisor, MPI, MPI I/O, OpenMP, Slurm

Publications

- Boublenza I, Lazouni HA, **Ghaffari L**, Ruiz K, Fabiano-Tixier AS, Chemat F, Influence of roasting on sensory, antioxidant, aromas, and physicochemical properties of carob pod powder (Ceratonia siliqua L.). J Food Qual 2017:1-10. doi:10.1155/2017/4193672

Technical Reports

- Abdelfattah A., Barra V., Beams N., Brown J., Camier J. S., Dobrev V., Dudouit Y., **Ghaffari L.**, Kolev T., Medina D., Rathnayake T., Thompson J. L., Tomov S., libCEED User Manual, Version 0.7, Zenodo, September 2020. doi:10.5281/zenodo.4302737

Invited Talks

- **SIAM Conference on Computational Science and Engineering** — Online
  CSE21 — *March 2021*

  Advances in LibCEED with Applications to Fluid and Solid Mechanics

  Leila Ghaffari, Jeremy Thompson, Valeria Barra, and Jed Brown

Contributed Talks

- **European Seminar on Computing** — Pilsen, Czech Republic
  ESCO 2020 — *June 2020*

  Towards Exascale Computing: Vectorized Operator Evaluations on Heterogeneous Architectures with libCEED

  Valeria Barra, Jeremy Thompson, **Leila Ghaffari**, Yohann Dudouit, and Jed Brown

Posters

- **SIAM Conference on Computational Science and Engineering** — Online
  CSE21 — *March 2021*

  Libceed – The Finite Elements Library without Elements

  Valeria Barra, Jeremy Thompson, **Leila Ghaffari**, and Jed Brown

- **AGU Fall Meeting 2020** — Online
  Dec. 2020

  Efficient implementations for matrix-free solutions of PDEs with libCEED

  Valeria Barra, Jed Brown, Jeremy Thompson, **Leila Ghaffari**, Yohann Dudouit, and Natalie Beams

- **Women in High Performance Computing Summit** — Vancouver, Canada
  WHPC — *Apr. 2020*

  An open-source library for high-performance computing on heterogeneous architectures: libCEED

  Valeria Barra, Jed Brown, Yohann Dudouit, **Leila Ghaffari**, and Jeremy Thompson

Honors and Awards

- **Clive Baillie Memorial Fellowship ($1000)** — Boulder, CO
  Computer Science Department at CU Boulder — *Oct. 2020*

  Awarded from the Department of Computer Science at CU Boulder to attend the 2021 SIAM Conference on Computational Science and Engineering (CSE2021).

Teaching Experience

- **University of Tehran** — Tehran, Iran
  Process Design with HYSYS — *Jan. 2011 - May 2011*

  Teaching assistant for **Computer Aided Process Design and Simulation with Aspen HYSYS**, a chemical process simulator used to mathematically model chemical processes, at the Chemical Engineering Department.