Ali Bozorgzadeh
Mechanical Engineer

Amol, Mazandaran, Iran | +98 911 741 7550 | alixbozorgzadeh@gmail.com | Personal Website
github.com/reverseila | CFD-Online | Google Scholar | ResearchGate

Education

2022–present | **Research Assistant**, Babol Noshirvani University of Technology*

2018-2022 | **M.Sc. in Mechanical Engineering**, Babol Noshirvani University of Technology,
- Thesis Topic : Numerical Investigation of the Effect of Flow Pulsation and Increased Discharged Voltage on Desalination and Energy Usage of Capacitive Deionization
- Supervisor : Dr. Abas Ramiar
- CGPA : 3.4

Capacitive Deionization | Electrical Double Layer | Modified Donnan | OpenFOAM

2013–2018 | **B.Sc. in Mechanical Engineering**, Babol Noshirvani University of Technology

* *Ranked 140^{th} university in the world in engineering by the US news ranking(2022)*

Research Interests

Computational Fluid Dynamics : Numerical Methods, Programming, Machine Learning
Electrokinetic : Dielectrophoresis

Publications

2022 Numerical investigation of continuous-flow ternary separation of particles in a microchannel with a wall-mounted obstacle using Dielectrophoresis (*Under review by the supervisor*)

- The idea is to place a trapezoidal obstacle in the channel to create a gradient in momentum (in the lateral direction) so that in regions closer to the obstacle, mid-size particles experience greater drag force and pass over the planar-angled electrode pair.
- We assumed that the fluid flow influences the motion of the particles, but the particles have a negligible effect on the fluid flow (one-way coupling).
- We extend the OpenFOAM solvers, `icoUncoupledKinematicParcelFoam` and `simpleFoam`, to solve for discrete and continuous phase, respectively. Further, the Dielectrophoretic force on particles has been implemented, by deriving from the abstract base class template `ParticleForces` (especifically, the `calcNonCoupled` member function).
- The code code is validated by performing experimental tests using a microdevice previously fabricated in our lab.

2020 Outokesh, Masoud, Seyed Soheil Mousavi Ajarostaghi, *Ali Bozorgzadeh*, and Kurosh Sedighi. ”Numerical evaluation of the effect of utilizing twisted tape with curved profile as a turbulator on heat transfer enhancement in a pipe.” Journal of Thermal Analysis and Calorimetry 140, no. 3 (2020) : 1537-1553. (link)

Programming & markup Languages

C	●●●●○
C++	●●●○○
Python	●●●○○
POSIX shell	●●●●○
Lua	●●○○○
(Emacs) Lisp	●●○○○
LaTeX	●●●○○
Markdown	●●●●●
Org	●●●○○

Tools

- Editors : (Neo)VIM , ed, GNU Emacs
- Version Control : Git
- Coreutils : `find`, `sed`, awk, `xargs`, ...
- Build, Test & Analyze :
  - `make`, `CMake`
  - Google Test, Catch2
  - `gdb`, `lldb`, `valgrind`, clang sanitizers, `clangd`, `clang-tidy`, `clang-format`, `bear`, `ctags`, `etags`
- Misc.
  - `tmux`, `ssh`, RegEx, Docker, Doxygen

Libraries & Frameworks

- Python
  - NumPy
  - Matplotlib
  - Pandas
- C++
  - OpenFOAM
  - Armadillo
  - Open-MPI

Open Source Projects & Contributions

STDMAN 2021–PRESENT

github.com/jeaye/stdman

Formatted C++20 stdlib man pages (cppreference)

Man pages | C++ Standard Library

Citle 2022

github.com/reverseila/citle

Get citation info (BibTeX file and DOI) by providing a title

Python | BibTeX | DOI

PRONUNCIATION.SH 2022

Github Gist

A simple (POSIX-compliant) shell script that downloads the pronunciation of English words from the Cambridge Online Dictionary

Shell Scripting | Pronunciation

Languages

Persian (Farsi)	●●●●●
English	●●●○○

References

Dr. Abas Ramiar

Associate Professor, Babol Noshirvani University of Technology

@ aramiar@nit.ac.ir

Google Scholar