

# Ali Darijani

## AI SCIENTIST

Aachen, Germany

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“Use “Trivial” to avoid writing something that you can not write easily in  $\LaTeX$ .”

## Summary

Half mathematician, half computer scientist who has the mathematical knowledge to understand the underlying work of an existing software tool and the programming skill to bend it to his will.

## Higher Education

### RWTH Aachen (One of the Best Technical Universities in Germany)

Aachen, Germany

Simulation Sciences MSc - GPA 1.9

Oct - 2023

- Focus: **Deep Learning, Image Processing**

### Sharif University of Technology (Best Technical University in Iran)

Tehran, Iran

Mechanical Engineering BSc - GPA 2.2

Oct - 2016

- focus: **Numerical Methods**

## Professional Experience

### RWTH Aachen(Digital Additive Production (DAP))

Aachen, Germany

Research Assistant(RA)/Wissenschaftliche Hilfskraft(WiHi)

April 2022 - December 2022

- Task 1: Checking the correctness of a paper's symbolic computation with the SciPy library in Python.
- Task 2: Graph based drawing of an ontology as to provide a specific client the overall idea behind a software package and its capabilities.
- Task 3: Modeling of a shape/topology optimization problem for lattice based structure using phase field technics in the FEniCS package.
- Task 4: Visualization of lattice based structure using OpenGL for fast and real-time rendering for the client.
- **Technical Skills:** UNIX/Linux, Bash/Zsh, SSH, Python, SciPy, Graphviz, C/C++, OpenGL,  $\TeX$ / $\LaTeX$ , FEniCS
- **Math Skills:** Computer Graphics, Computational Geometry, Graph Based Visualization, Variational Methods, FEM Methods, Continuum Mechanics
- **Soft Skills:** Google-Fu, speed reading, time management, Communication, presentation skills.

### RWTH Aachen(GRS - German Research School)

Aachen, Germany

Research Assistant(RA)/Wissenschaftliche Hilfskraft(WiHi)

November 2018 - February 2019

- Task 1: Learning Continuum Mechanics, Tensor Calculus, Differential Geometry
- Task 2: Advanced  $\TeX$ / $\LaTeX$ for Typesetting a PhD Dissertation
- Task 3: Technical English Editing of a PhD dissertation
- **Technical Skills:** UNIX/Linux, Bash/Zsh,  $\TeX$ / $\LaTeX$
- **Math Skills:** Continuum Mechanics, Differential Geometry, Tensor Calculus
- **Soft Skills:** Google-Fu, Speed-Reading, Time Management, Communication, Presentation Skills.

### RWTH Aachen(AICES - Aachen Institute for Advanced Study in Computational Engineering Science)

Aachen, Germany

Research Assistant(RA)/Wissenschaftliche Hilfskraft(WiHi)

April 2018 - November 2018

- Learning Stochastic Differential Equations and in Turn Probability Theory
- Programming High-Performance Code in C/C++
- **Technical Skills:** UNIX/Linux, Bash/Zsh, SSH, C, C++, SLURM,  $\TeX$ / $\LaTeX$
- **Math Skills:** **Probability Theory, Stochastic Differential Equations, Monte Carlo Methods**
- **Soft Skills:** Google-Fu, speed reading, teamwork, time management, Communication, presentation skills.

## Skills

<b>Operating Systems</b>	UNIX®, Linux, POSIX®, macOS®, Darwin®, Arch Linux, Manjaro Linux
<b>Computing Clusters</b>	Secure Shell(SSH), X Window System, Public-key cryptography, Slurm Workload Manager, Module System
<b>Compiled Languages</b>	C, C++, TeX/LaTeX
<b>Scripting Languages</b>	Bash, Zsh, *sh, Python
<b>Natural Languages</b>	English, German, Farsi
<b>Build Systems</b>	GNU Make, CMake
<b>Versioning Systems/Platforms</b>	Git, GitHub, GitLab
<b>Markup Languages</b>	HTML, XML, Markdown, AsciiDoc, YAML, TOML
<b>Typesetting Languages/Frameworks</b>	TeX, LaTeX, Pandoc, AsciiDoctor, troff, groff
<b>Text Processing Languages</b>	ed, sed, awk, Perl
<b>Static Site Generators</b>	Jekyll, Hugo
<b>Numerical Libraries</b>	NumPy, Pandas, Matplotlib, SciPy, scikit-image, LAPACK, Eigen, Optuna
<b>Machine/Deep Learning Frameworks</b>	scikit-image, OpenCV, scikit-learn, TensorFlow, Keras, PyTorch
<b>Visualization Libraries/Packages</b>	Matplotlib, Gnuplot, OpenGL, Graphviz
<b>Mathematical Analysis</b>	Real, Fourier, Harmonic, Functional
<b>Mathematical Optimization</b>	Constrained, Unconstrained, Finite-Dimensional, Infinite-Dimensional
<b>Variational Methods</b>	Classical, Direct Methods
<b>Mathematical Visualization</b>	Scientific Visualization, Computer Graphics, Computational Geometry
<b>Soft Skills</b>	Meticulousness, Google-Fu, Subliminal Pattern Recognition, Speed Reading, Touch Typing, Time Management

## Natural Languages

<b>English</b>	TOEFL 107, GRE General 321, Multiple RWTH Language Center Certificates, and ...
<b>German</b>	A2
<b>Farsi/Persian</b>	Native but can only use it colloquially

## Achievements

2010	<b>Full Scholarship</b> , Sharif University of Technology Admission Process	<i>Iran</i>
2017	<b>Full Scholarship</b> , Ontario Tech University Admission Process	<i>Canada</i>
2022	<b>Gold Medal</b> , Cloudflight Coding Contest(AI Route)	<i>Germany</i>

## Interests

<b>Books</b>	Mathematics, Computer Science, Classic Literature, Psychology, Psychiatry, Comics, Manga, Lexicography, Etymology, Linguistics
<b>Sports</b>	Badminton, Jump Rope, Calisthenics, Shooting

“The only way to learn mathematics is to do mathematics:-)”  
 Paul Halmos