

Lodewijk Brand

PH.D. STUDENT · COLORADO SCHOOL OF MINES · ACTIVE SECURITY CLEARANCE (SECRET)

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Summary

Current Ph.D. student at the Colorado School of Mines in Golden, Colorado. An enthusiastic and open minded researcher focused on fostering collaborative research projects in machine learning under the guidance of Professor Hua Wang. Lodewijk's current goal is to encourage undergraduate students to pursue graduate education in Computer Science through involvement in high-impact research projects. When he's not in the lab Lodewijk can be found exploring/climbing in the Rockies.

Education

Colorado School of Mines

Golden, Colorado

P.H.D. STUDENT, COMPUTER SCIENCE

Aug. 2017 - Present

- **Research:** Theoretically convergent machine learning algorithms applied to limited data, multi-input-multi-label applications in Alzheimer's Disease diagnosis and additive manufacturing.

Colorado College

Colorado Springs, Colorado

B.A. IN COMPUTER SCIENCE AND COMPUTATIONAL CHEMISTRY - *magna cum laude*

Aug. 2011 - May 2015

- **Thesis:** *Neural Networks, Genetic Algorithms and the Blood-Brain Barrier*. Analyzed the effects of genetic algorithms on the performance of multi-layered neural networks. Developed the algorithms from scratch and created an application to predict the blood-brain barrier permeability of any chemical compound.

Work Experience

Colorado School of Mines

Golden, Colorado

TEACHING/RESEARCH ASSISTANT

Aug. 2017 - Present

- **Leadership:** Mentored and designed implementation tasks for undergraduate students to develop a clinical research tool for the presymptomatic diagnosis of Alzheimer's Disease.
- **Teaching:** Supported an introductory Fortran class during lab and office hours.

Northrop Grumman

Colorado Springs & San Diego, USA

SOFTWARE ENGINEER, PROFESSIONAL DEVELOPMENT PROGRAM

Aug. 2015 - June 2017

- **Embedded Software:** Developed and designed the initial prototype for a cross-domain-solution on a Xilinx Ultrascale+ using NSA software guidance principles. Fostered a team-oriented development environment for new engineers from *San Diego, California* to *Orlando, Florida*. Presented technical approach to internal customers.
- **Modeling & Simulation:** Developed algorithms in C# and Java for autonomous way-point navigation and leveraged novel machine learning algorithms to speed up a legacy software application by three orders of magnitude. Presented algorithmic approach to government customers.

Presentations

Neural Networks, Genetic Algorithms, and the Blood-Brain Barrier

Colorado & Maryland, USA

SEMINAR PRESENTATION

Jan. 2015

- Presented to Dr. Michael Johnston's lab at the Kennedy Krieger Institute in *Baltimore, Maryland*.
- Presented to employees at the National Institute of Standards and Technology in *Gaithersburg, Maryland*.
- Selected speaker as part of a *Mellon Foundation Grant* to Air Force Cadets and Colorado College students in *Colorado Springs, Colorado*.

Awards

2017 **Travel Grant**, Advanced Computing for Social Change Institute (\$1500)

Denver, Colorado

2011-15 **Scholarship**, Colorado College Trustee Scholar (\$7500)

Colorado Springs, Colorado

2014 **Lecture Series**, "Speakers on Innovation" (\$3000)

Colorado Springs, Colorado

2013-14 **Research Grant**, Student-Faculty Collaborative Research (\$4000)

Colorado Springs, Colorado

Skills

Programming Python, C/C++, C#, Java, LaTeX, Fortran, git, bash, buildroot, Gradle, TensorFlow, MATLAB

Teamwork Agile, Communication, Leadership, Mentoring, Initiative

Languages English, Dutch