APAAR SHANKER

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https://github.com/auag92

RESEARCH STATEMENT

Automating and Accelerating Knowledge Discovery using AI

PROJECTS

Python Library for Materials Knowledge Discovery (PyMKS)

National Institute of Standards and Technology

May 2017 – Ongoing Gaithersburg, MD

- https://github.com/auag92/pymks
- Worked on the development of an open source python software, currently available on conda-forge.
- Implemented novel analytics algorithms in functional and distributed form using PyToolz and Dask, to leverage multicore and multithread capabilities of modern processors.
- Wrapped the implementation in scikit-learn API

High Throughput Analytics of Molecular Datasets

Georgia Tech, National Science Foundation

Sep 2016 – ongoing Atlanta, GA

- Development of computer vision based feature generation and visualization workflows for nanoporous macromolecules.
- Deep learning based predictive linkages for high throughput selection of optimal materials for desired performance attributes.

Discovering Equations using Deep Neural Networks

Georgia Tech, National Institute of Standards and Technology

Jan 2017 – ongoing Atlanta, GA

- Working on a DNN model using tensorflow and keras, with constrained and free filters to learn the Partial Differential Equations governing material transformation and mechanical properties.

High Performance Multi-Physics P.D.E Solver

Indian Institute of Science

Sep 2014 – May 2016 Bangalore, India

- https://github.com/auag92/lattice_boltzmann_phase_field
- Developed a fully parallelized, finite difference, multiphysics solver in **C** using **MPI** to simulate alloy solidification in presence of fluid flow on an HPC cluster.

Course Projects

Georgia Tech

Aug 2016 – Dec 2017 Atlanta, GA

- A Q-Learning based AI agent to execute stock trading.
- A neural net model for predicting minimum energy surface for copper crystal.

EDUCATION

P.h.D. in Computational Science and Engineering

Georgia Institute of Technology

Aug 2016 – June 2020

Master of Science

Indian Institute of Science, Bangalore

Aug 2015-June 2016 First Class

Bachelor of Science

Indian Institute of Science, Bangalore

Aug 2011-June 2015 First Class

SKILLS & STRENGTHS

OS: Linux, Intermediate Systems Knowledge

languages: Python, C, C++

tools: scikit-learn, numpy, scipy, pandas

Dask, Pytoolz, Keras, TensorFlow

HONORS

J. N. Tata Endowment Scholarship for Higer Education Awarded in 2016

INSPIRE Scholarship
Awared by Dept. of Science and Tech., Govt. of India, 2011-2016

EXTRACURRICULARS

Senator, Georgia Tech Student Government Association

Executive Team Member, Event Commite at Georgia Tech SGA

CONFERENCES

CHIMAD, Phasefield V

Northwestern University

Aug 2017, Conducted tutorial

MLSE 2018

Carnegie Mellon University

June 2018, Presented poster