APAAR SHANKER

College of Computing, Georgia Tech

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https://github.com/materialsinnovation

RESEARCH STATEMENT

Application of Machine Learning and Big Data techniques to develop predictive process-sturcture-property linkages for automation and accelaration of material manufacturing cycle.

PROJECTS

PyMKS Python Project Development

NIST, Georgia Institute of Technology

May 2017 – Ongoing Gaithersburg, MD

- https://github.com/wd15/fmks
- Implemented the Material Knowledge Systems algorithms in functional python using Pytoolz and Dask to leverage multiprocessing and multithreading capabilities of modern PCs.

High Throughput Selection of 2D Nanoporous Zeolites

NSF, Georgia Institute of Technology

Sep 2016 – ongoing Georgia Tech, Atlanta

- Working on the development of atomistic structure descriptors for nano-porous materials.
- Working on the development of structure-property linkages for high throughput selection of nanoporous zeolites for desired catalytic or separation attributes.

Surrogate, Predictive models for Microstructure Evolution

NIST, Georgia Institute of Technology

Jan 2017 – ongoing Georgia Tech, Atlanta

- Working on the development of process-structure linkages based on phasefield microstructure evolution models.

Modeling Alloy Solidification in presence of Convection

Indian Institute of Science

Sep 2014 – May 2016 Bangalore, India

- Developed a multiphysics Phasefield solver over 15 months to simulate alloy solidification in presence of fluid flow.
- Coded entirely in C,with full parallelization implemented using **MPI** and run on around 1000 processors at the institute supercomputing facility.

Gas Turbine Blades Repair

GE India Technology Center

May 2014 – Sep 2014 Bangalore, India

- Modified repair protocols for the industrial Gas Turbine frames based on structural and material analysis of components resulting in savings to the tune of $2 million for the company.

EDUCATION

P.h.D. in Computational Science and Engineering

Georgia Institute of Technology

Aug 2016 – ongoing

M.S. and B.S. in Materials Science

Indian Institute of Science, Bangalore

Aug 2011-June 2016 First Class

CURRICULARS

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

SKILLS & STRENGTHS

Machine Learning: Sklearn, Keras, Torch
Phasefield Modeling and Fluid Dynamics
Molecular Dynamics
Parallel Programming-MPI
Functional Programing

Linux Python C Matlab/Ocatve

RESEARCH GROUP

Supervisor: Dr. Surya Kalidindi
Website : mined.gatech.edu

CONFERENCES

CHIMAD, Phasefield V

Northwestern University

Aug 2017