Overview of Fellows’ Activity

Data Science Education Community of Practice
DSECOP Workshop

June 26, 2023

Mohammad Soltanieh-ha
Clinical Assistant Professor
Information Systems Department
Boston University
Introduction

**Education:** Computational physics (Ph.D.), Northeastern University 2015

**Industry experience:** Data scientist, Infor 2015 - 2018

**APS Topical Group on Data Science (GDS):** Founding chair 2018-2021

**Teaching (MBA & MS)**
- Big data analytics
- Business Analytics Toolbox
- Introduction to Data Analytics

**Research**
- Computer vision applications in automating cancer diagnosis
- Macroeconomics time series forecasting
- High performance computing
The Data Science Education Community of Practice (DSECOP), a program funded by the APS Innovation Fund and led by the APS Topical Group on Data Science (GDS), is committed to supporting physics educators in integrating data science into their courses.

To achieve this, we organize webinars, workshops, and collaborate with various institutions.
DSECOP Fellows

Team: dsecop.org/team

2023 Fellows

Julie Butler
Using machine learning to extend the range of theoretical many-body calculations in regards to infinite matter
Email: butle222@msu.edu
Web: https://juliebutler.blog
Title: PhD Student until August 1; Assistant Professor of Physics from August 1
Affiliation: Michigan State University until August 1; University of Mount Union from August 1.

Ashley S. Dale
Spin crossover materials for novel low-power memory devices; latent feature extraction for trusted and explainable AI
Email: dalessio120@iu.edu
Web: https://dalessio120.github.io
Title: PhD Student
Affiliation: Indiana University-Purdue University Indianapolis

Richard Harry
Developing low/high-frequency sensor devices from multifunctional materials with target applications such as smart-grids, power systems, wearable electronics, and tactile interference systems.
Email: rharry999@tuskegee.edu
Web: https://www.linkedin.com/in/richard-harry-874a04100/
Title: PhD Student
Affiliation: Tuskegee University

Joseph Dominicus Lap
Using hep-th techniques to understand hot nuclear phenomena
Email: Joseph.Dominicus.Lap@yale.edu
Web: DSECOP Fellows
Title: PhD Student
Affiliation: Yale University

Connor Robertson
Modeling for active nematic fluids and bacterial growth directly from experimental observations via data-driven and machine learning approaches
Email: cj959@njit.edu
Web: https://cconroberson.github.io
Title: PhD Student
Affiliation: New Jersey Institute of Technology

Karan Shah
Machine learning accelerated electronic structure simulations for matter under extreme conditions.
Email: k.shah@hrz.de
Web: https://karan.sh
Title: PhD Student
Affiliation: Center for Advanced Systems Understanding, Helmholtz-Zentrum Dresden-Rossendorf, Görlitz, Germany

Olivia Young
Real-time FPGA and GPU Algorithm Development for Transient Hunting on the Long Wavelength Array
Email: ory3002@rit.edu
Web: https://livsguidetothegalaxy.github.io
Title: PhD Student
Affiliation: Rochester Institute of Technology
DSECOP: Data Science Education Community of Practice

Preparing students for multiple career paths by offering teaching materials to faculty members who teach undergraduate and graduate physics courses.

GitHub: bit.ly/DSECOP-GitHub

Table of Contents

- Introduction to Data Science Libraries by Julie Butler (2023)
- Symbolic Regression by Joseph Dominicus Lap (2023)
- Connecting MonteCarlo to Modern AI by Ashley Dale (2023)
- Time Series Analysis and Forecasting by Connor Robertson (2023)
- Intro to Classification Algorithms by Richard Harry (2023)
- Automated Object Detection by Karan Shah (2023)
- Intro to Data Processing with Histograms by Radha Mastandrea (2022)
- Intro to Deep Learning by Fatima Bagheri (2022)
- Learning the Schrodinger Equation by Karan Shah (2022)
- NMR Deep Learning by Sebastian Atalla (2022)
- Solving Differential Equations with NNs by Julie Butler (2022)
- Spectral Clustering by Cunwei Fan (2022)
- Exploratory Data Analysis by Radha Mastandrea (2022)
- Intro to Random Forest by Fatima Bagheri (2022)
- Singular Value Decomposition by Sebastian Atalla (2022)
- Machine Learning Workflow by Julie Butler (2022)
DSECOP Workshop- Fellow Module Feedback

bit.ly/DSECOP-feedback
Thank you!
Comments?