SRIJITH RAJAMOHAN, PH.D.

INTRODUCTION

A Short Overview

TOPICS

OVERVIEW

Education
Skills
Current Responsibilities
Focus Areas
Consulting
Teaching/Outreach
Research Interests
Where can you find me?

EDUCATION & CURRENT ROLE

ELECTRICAL ENGINEERING

Thesis work on Neural Networks for Image Classification

COMPUTATIONAL ENGINEERING

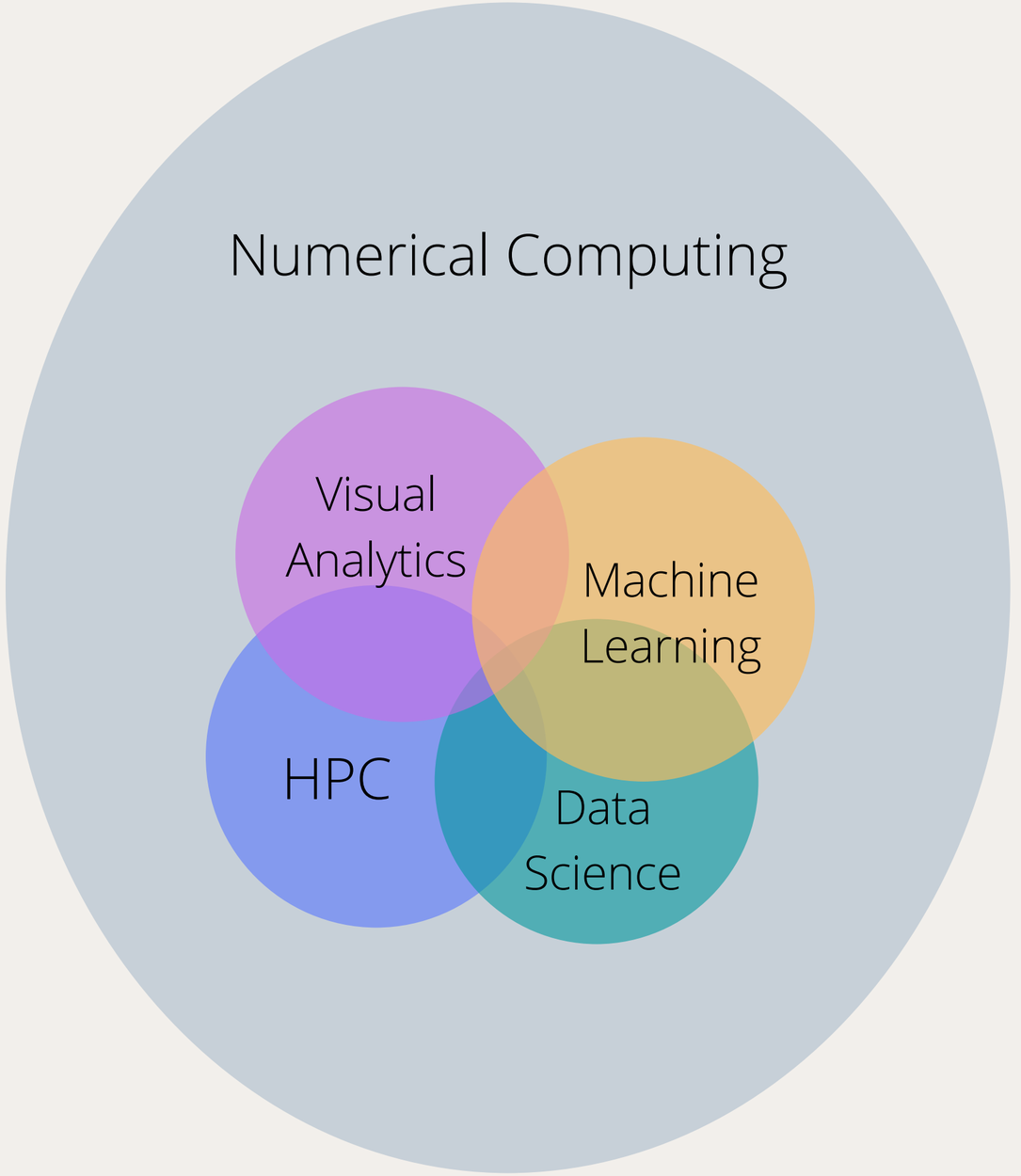
Solution of Partial Differential Equations for large-scale physics problems

COMPUTATIONAL SCIENTIST

Solve computational problems for researchers and faculty

SKILLS

- **Traditional HPC for Computational Science**
  - Computational Fluid Dynamics
  - Computational Electromagnetics
- **Data Science**
  - Python Data Science stack
- **Machine Learning/Deep Learning**
  - NLP, AutoML etc.
  - Pytorch, Tensorflow, Keras etc.
- **Visual Analytics**



CURRENT RESPONSIBILITIES

CONSULTING

Over email or in-person consultations

EDUCATION/OUTREACH

Classes on a variety of topics at VT and at external venue

INDEPENDENT/ COLLABORATIVE RESEARCH

Presented at IEEE, ACM conferences

MENTORING GRADUATE STUDENTS

Supervise students who perform ARC duties or research

CONSULTING

USE A TICKETING SYSTEM TO INTERFACE WITH RESEARCHERS

- Low touch: minimal interaction
- High touch: extensively involved in a project

INFRASTRUCTURE TICKETS

- Advice on cluster usage or infrastructure
- Help set up infrastructure

METHODOLOGY TICKETS

- Provide advice on methods
- Request for collaboration

TEACHING/OUTREACH

- **Classes at VT**
  - Seminar classes (1 - 4 hrs) for faculty
  - For-credit classes
  - Supervise Independent study
- **Workshops at conferences**
  - ACM PEARC
  - SuperComputing
- **Regional Meetups**
  - RVATech: DataScience conference in Richmond

- Deep Learning on GPUs with PyTorch for Text Analysis
- AutoML: An Overview of Automated Machine Learning
- Introduction to Generative Modeling
- Introduction to Scientific Computing using Python-
- Introduction to Data Visualization
- Co-taught 'Introduction to Debugging and Profiling with GNU tools'-
- Introduction to Scientific Visualization using ParaView-
- TensorFlow for Machine Learning-
- Dask for Out-of-Core Computing: Big Data solutions on your laptop-
- Unsupervised Machine Learning using Sckit-learn and TensorFlow-
- Supervised Machine Learning using Sckit-learn and TensorFlow-
- Deep Learning using TensorFlow and Keras
- Python Pandas for Data Analytics

HANDS-ON SESSIONS

- Personal website
  - Slides, notebooks and session notes
- Hands-on component
  - JupyterHub/ Binder/ Colab
- Reproducibility
  - Ansible notebooks for provisioning VMs
  - Conda environment file
  - Used to do Docker and VM as well
- Communication
  - Identify the audience
  - Email the attendees and give them a channel to connect before the session
  - Tailor content - identify sections where the audience might have trouble following
  - Make a note of questions you can't answer and follow up after the session

TECHNICAL CONTENT

- Personal website
  - https://srijithr.gitlab.io
- Jupyter notebook website
  - https://srijithr.netlify.app/
  - Mobile-friendly and helpful for shorter sessions
- Educational content
  - Content divided into Introductory, Intermediate and Advanced levels
  - E.g. Introduction to AutoML (Intermediate)
- Framework review and guide
  - E.g. Neptune.ml: Machine Learning workflow management tool
- Workflow optimization guides
  - E.g. Conda environment setup and usage
  - E.g. Tensorflow on multi-gpu nodes

Research Interests

- Natural Language Processing
- Dimensionality Reduction
- (Bayesian) Optimization and AutoML
- High-Performance Computing in Python
- Cloud Computing

Learning new topics

- Books, papers, blogs, videos
- Look for the simplest explanation and incrementally add complexity
- Hands-on examples help
- For tools select ones that
  - Have good adoption and an extensive community of users
  - Well documented
  - Fits into an ecosystem of tools
- Document topics on my blog @srijithr.gitlab.io

FIND ME

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WEBSITE

sriijithr.gitlab.io

JUPYTER NOTEBOOK

srijithr.netlify..com

WEB RESUME

https://srijithr-resume.netlify.app/