

GAURAV SOOD

Sr. Data Scientist

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Bangalore, India

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"Senior Data Scientist with total 14 years of experience, and 7 years of experience in Machine Learning, developing open source software in Python, C++, contributing as both individual contributor and team leader, working on Machine Learning, conceptualizing, designing and implementing end to end solutions. Currently working on ideas around Natural Language Processing and Reinforcement Learning to automate Hardware Diagnostics. Have used both traditional machine learning methods like Bayesian Networks, Conditional Random Fields and modern deep learning methods LSTMs, Transformer based models like BERT and GPT, using TensorFlow Recently started using Julia and Flux for Machine Learning. "

SKILLS

Python

PyTorch

TensorFlow

JAX

Julia

Flux

NumPy

SciPy

Matplotlib

Deep Learning

Large Language Models

Generative AI

Probabilistic Programming

Reinforcement Learning

Open Source Software

EXPERIENCE

Sr. Data Scientist

HP Inc. June 2021 – Ongoing

Bangalore, India

- Designed and Developed Large Language Models Based application for web content filtering/selection.
- Mentored three data science interns on Hardware logs analysis using Graph Neural Networks and Large Language Models.
- Fine Tuned Small language Chat model on custom data using 4-bit quantized models.
- Developed Telemetry data analysis pipeline using Large Language Model embeddings, UMAP, Variational AutoEncoder.

Probabilistic modelling

Gaussian processes

Variational inference

Optimal control

Trajectory optimisation

Software Engineer Machine Learning

HP Inc. June 2017 – 2021

Bangalore, India

- Analyzed Sales Time Series Data (Short term/Long term forecasting) using Prophet, ARIMA, Gradient Boosting models.
- Behavior Modelling using Tree Based Models, SHAP, UMAP
- Proposed methodology which specifies automated hardware diagnostics problem in Reinforcement Learning Framework.
- Design and implemented software module which models environment for Reinforcement Learning agent to learn using Monte Carlo Methods.
- Worked on Conditional Random Fields for Sequence Tagging and Information extraction.

Communication

Active listening

Teaching

1. Senior Software Engineer

Senior Software Engineer

HP Inc. June 2015 – 2017

Bangalore, India

- Designed and Developed a parser for PostScript Language to extract images and meta data which was impacting 50000 hp customers and saving 5 million dollars.
- Designed and developed Telemetry module in python.
- Led team of 7 software developers designing and implementing open source software used by over 1 million customers.
- Worked on understanding PDF specification, design and implemented PDF document processing using PDF libraries like iText and PDFium
- Lead a team of six people which delivered Imaging Processing Solutions to over 10 PSU banks in india

Engineering

Teamwork

Industry

2. Software Engineer

Software Engineer

HP Inc. June 2010 – 2015

 Bangalore, India

CERTIFICATIONS

Deep Learning Specialization

Coursera Oct-2021 Credential ID G8PG2GY6WFS)

Reinforcement Learning Specialization

Coursera Sept-2021 Credential IDD3LDNU8BRW68

Introduction to Quantum Computing

Coursera May-2021 Credential ID RXQHLEC2WYC8

PROJECTS

Optimal Control in Multimodal Dynamical Systems as Probabilistic Inference

University of Bristol

 May 2021 - Ongoing

 Bristol, UK

- Developing data-efficient techniques for exploration in multimodal dynamical systems.
- The goal of this project is to explore a single dynamics mode that is known to be operatable whilst avoiding other modes.

Variational inference

Gaussian processes

Optimal control

PROJECTS (CONT.)

Trajectory Optimisation in Learned Multimodal Dynamical Systems

University of Bristol

📅 Sept 2019 - March 2021

📍 Bristol, UK

- Synergising Bayesian inference and Riemannian geometry to control multimodal dynamical systems.
- Finds trajectories that 1) remain in a desired dynamics mode, 2) avoid regions of the dynamics with high epistemic uncertainty.
- 🔄 aidanscannell/trajectory-optimisation-in-learned-multimodal-dynamical-systems

JAX

Probabilistic geometries

Optimal control

Identifiable Mixtures of Sparse Variational Gaussian Process Experts

University of Bristol

📅 Sept 2018 - Ongoing

📍 Bristol, UK

- Improving identifiability and scalability in the Mixtures of Gaussian Process Experts model with GP-based gating networks.
- Variational inference based on sparse GP approximations.
- 🔄 aidanscannell/mogpe

GPflow

TensorFlow

Gaussian processes

Variational inference

VOLUNTEERING

Cohort Representative

FARSCOPE CDT

📅 Sept 2018 - Ongoing

📍 Bristol, UK

- Represent myself and my CDT peers in management meetings.
- Communicate information between students and management.

Communication

Interpersonal Skills

Club Leader

Code Club

📅 Dec 2017 - April 2018

📍 Junction 3 Library, Bristol , UK

- Set up (and then ran) a Code Club for children aged 9-13.
- Led the organisation, planning and teaching of weekly lessons.
- Planned lessons to engage children by making coding fun.
- Extremely rewarding and reinforced my love for teaching.

Leadership

Teaching

Communication

Active listening

INVITED TALKS

Synergising Bayesian Inference and Probabilistic Geometries for Robotic Control

Cognitive Systems - Technical University of Denmark (DTU)

📅 18 March 2021

📍 Zoom

- Presented a method synergising Bayesian inference and probabilistic geometries to control multimodal dynamical systems.

Communication

Probabilistic geometries

Gaussian processes

EDUCATION

Msc Research Speech Recognition

Indian Institute of Science Bangalore 2006-2009

- 📄 Speech Recognition using Support Vector Machines
-

BTech Electronics and Communication Engg

GNE Ludhiana 2001-2005

Machine Learning Summer School Moscow (MLSS)

Skoltech

📅 Aug 2019 - Sept 2019

¹ MRes in Robotics & Autonomous Systems

University of Bristol | First Class Honours

📅 Sept 2017 – Sept 2018

- 📄 Extending BDI Agents to Model and Reason with Uncertainty
-

MEng in Mechanical Engineering

University of Bristol | First Class Honours

📅 Sept 2012 – June 2016

- Graduated in top 10% of cohort

¹Awarded if PhD is not completed. ■

ACHIEVEMENTS



Full Sporting Colours

Awarded full colours for outstanding achievements in snowboarding. Multiple gold medals in British University Snowboard Championships.



Starting To Teach

Established myself as a confident, enthusiastic and effective teacher who is able to engage, encourage and develop students' learning.



Bristol Plus Award

For undertaking a wide range of tasks to further enhance student skills - only 700 out of 23,000 achieved this award per annum.



Mary Jones Prize for Mathematics

For outstanding achievements in A Level mathematics @ Ripon Grammar School



The Duke of Edinburgh's Award

Bronze/Silver/Gold

REFERENCES

Prof. Arthur Richards

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Dr. Carl Henrik Ek

@ University of Cambridge

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