

# Shourya Verma

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## Objective

I am highly motivated to pursue a career in artificial intelligence and machine learning-based methods in niche application areas in healthcare. With my academic preparedness at Heidelberg University, and internship experiences, my long-term goal is to blend high-end software development, artificial intelligence, and quantum computation for problems concerning medical imaging, bioinformatics, and life sciences.

## Education and Skills

<b>University of Glasgow, United Kingdom</b> BSc in Computing Science and Physics Honors	<b>BSc (4-year program)</b> 2:1, Overall B, 7.5/10 GPA	<b>Batch of 2021</b>
<b>Heidelberg University, Germany</b> MSc in Scientific Computing	<b>MSc (2-year program)</b> Specialization: Machine Learning	<b>Batch of 2023</b> Application Area: Bioscience

**Skills:** Python, Scikit-learn, Tensorflow, Pytorch, Keras, HTML, CSS, Java, JavaScript, NodeJS, Android Studio, Django, MongoDB, Dart, Flutter, Docker, Kubernetes.

## Research Experience

<b>Master Thesis, Machine learning for Bioimage Analysis</b> Working on self-supervised learning methods for panoptic segmentation and domain adaptation in biomedical imaging applications.	<b>EMBL Heidelberg</b>	<b>Apr-Sep 2023</b>
<b>Student Assistant, Image Analysis and Learning</b> Worked on optimizing machine learning algorithm behind UMAP (Uniform Manifold Approximation and Projection for Dimension Reduction) using autoencoder and contrastive-loss based methods.	<b>IWR Heidelberg</b>	<b>Nov-Apr 2023</b>
<b>Research Intern, Intelligent Medical Systems</b> Worked on improving generalizability of machine learning based tissue classification by generating domain invariant representation of hyperspectral image data.	<b>DKFZ Heidelberg</b>	<b>Apr-Oct 2022</b>
<b>Research Intern, Machine Learning and Database</b> Extracting patient data from clinical letters and storing them into a NOSQL Database. Data predicted mortality and hospitalization risk in patients using deep learning model. This intelligent database assists clinicians to make informed decisions and provide care to patients in a personalized manner.	<b>NHS Golden Jubilee</b>	<b>Jun-Aug 2021</b>
<b>Course Assistant, Deep Learning</b> Course Assistant under Dr Fani Deligianni's supervision, developing MOOC 'Informed Clinical Decision Making using Deep Learning' for <a href="https://www.coursera.org/specializations/clin-decision-deep-learning">Coursera</a> . <a href="https://www.coursera.org/specializations/clin-decision-deep-learning">coursera.org/specializations/clin-decision-deep-learning</a>	<b>Coursera</b>	<b>Jun-Aug 2021</b>
<b>Bachelor Thesis, Machine Learning</b> <ul style="list-style-type: none"><li>Machine Learning to Study Hadron Particles</li><li>Machine Learning to Detect Arrhythmia Based on ECG Data – Interpretability</li></ul>	<b>University of Glasgow</b>	<b>2020-2021</b>
<b>Technology Intern, Software Development</b> Learned about different roles in software development life cycle and delivery models. Researched on UK and Europe Fintech Start-ups, covering different technological themes and trends in the IT industry.	<b>Tata Consultancy Services</b>	<b>Jun-Jul 2020</b>
<b>Student Project, Software Engineering</b> University Team Project on developing a complex AR based software to view dataflow between two machines/nodes using Unity, Android Studio, WAMP. Awarded <b>best project</b> by Obashi Technology.	<b>Obashi Technology</b>	<b>2019-2020</b>
<b>Technology Intern, WebApp Development</b> Worked as a full-stack web app developer on a Journal Name sorting and storing application using MongoDB, NodeJS and JavaScript.	<b>IIT Kanpur</b>	<b>Jun-Jul 2019</b>

## Research Intern, Chemistry of Complex Systems

University of Frankfurt

Jun-Jul 2018

Worked on computational aspects in photo-physics, and calculation of two-photon absorption cross-section of phenylamine dyes.

## Research Intern, Biological Sciences

IIT Kanpur

2016-2017

The work involved understanding the effects of nanomaterials on plant growth under environmental stress and biomaterial-based charge storage and supercapacitors. My contributions led to **co-authorship in five published research papers** in peer-reviewed international journals.

## Publications and Preprints

<https://www.researchgate.net/profile/Shourya-Verma-2/publications>

- 1. Development of a Semi-Automated Database for Adult Congenital Heart Disease Patients.**  
Verma, S., Deligianni, F., Veldtman, G. et al.  
Canadian Journal of Cardiology, 0828-282X (2022)
- 2. Development of Interpretable Machine Learning Models to Detect Arrhythmia based on ECG Data.**  
Verma, S.  
Arxiv Preprint; Machine Learning (cs.LG) (2022)
- 3. Biocharring of natural fibers of insect and plant origin: a green route for the production of 'carbon-based charge storage nanomaterials'.**  
Dubey, A., Jangir, H., Verma, S. et al.  
Mater Renew Sustain Energy 7, 20 (2018)
- 4. Nano-pyrite seed dressing: a sustainable design for NPK equivalent rice production.**  
Das, C.K., Jangir, H., Verma, S. et al.  
Nanotechnol. Environ. Eng. 3, 14 (2018)
- 5. Sequential entrapping of Li and S in a conductivity cage of N-doped reduced graphene oxide supercapacitor derived from silk cocoon: a hybrid Li-S-silk supercapacitor.**  
Jangir, H., Pandey, M., Verma, S. et al.  
Appl Nanosci 8, 379-393 (2018)
- 6. An eco-friendly, low-power charge storage device from bio-tolerable nano cerium oxide electrodes for bioelectrical and biomedical applications.**  
Dubey, A., Jangir, H., Verma, S. et al.  
Biomed. Phys. Eng. Express 4 025041 (2017)
- 7. The seed stimulant effect of nano iron pyrite is compromised by nano cerium oxide: regulation by the trace ionic species generated in the aqueous suspension of iron pyrite.**  
Das, C.K., Dubey, A., Verma, S. et al.  
RSC Adv. 6, 67029-67038 (2016)

## Referees

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