Dr Rahul Mourya

Lecturer in Computer Science

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About me

8+ years of research and teaching experience in Signal/Image Processing, Computer Vision, Numerical Optimization, Machine Learning and Deep Neural Networks.

Professional Experience

Sept, 2023 - Present, Lecturer at Department of Computer Science and Mathematics and **Link Tutor** for Partner Institutions in Nepal

Feb, 2021 - May 2023, Research Associate at School of Engineering and Physical Sciences, Heriot-Watt University, Edinburgh
EPSRC Funded Projects (Analysing and Processing Multimodal Data): My research work focused on developing methods to leverage the representation power of the Deep Neural Networks to translate information across modalities and rely on the flexibility and robustness of model-based optimization techniques to perform the low-level tasks while integrating multiple sources of information.
PI at Heriot-Watt: Joao F. C. Mota

Nov, 2017 - Jan 2021, Research Associate at School of Engineering and Physical Sciences, Heriot-Watt University, Edinburgh
EPSRC Funded Projects (USMART and ORCA Hub): The project have successfully laid a foundation for a smart underwater sensing network using acoustic communication and power-efficient low-cost sensors. My research work focused on development of algorithms for network discovery and localization, and signal processing for Spatio-temporal monitoring and event detection in the ocean environment.
PI and Co-I at Heriot-Watt: Yvan PETILLOT and Mauro DRAGONE

May, 2016 - July 2017, Postdoctoral Researcher at Signal, Image and Data Processing Department, Télécom ParisTech, Université Paris-Saclay, Paris
Research Topic: Stochastic and distributed optimization algorithms for large-scale problems in signal processing and machine learning
Supervisor: Prof. Pascal BIANCHI

Sept, 2015 - March, 2016, Research Engineer at Centre de Recherche Astrophysique de Lyon, Observatoire de Lyon, Université Claude Bernard Lyon 1.
Research Topic: Restoration of astronomical images using Inverse approach and numerical optimization
Supervisor: Astronomer Éric THIÉBAUT

Teaching Experience

Sept 2023 - Present, Lecturer and Module Leader at University of Wolverhampton, UK
Supervising and Teaching MSc AI/Data Science and BSc Computer Science students

Sept 2022 - Dec 2022, Teaching Assistant at Heriot-Watt University, Edinburgh
Prepared and conducted tutorial for course **Foundation of Learning and Computer Vision** to MSc Computational Data Science students
Course Lead: Asst. Prof. Joao Mota

Aug 2020 - Jan 2022, Teaching Assistant at Heriot-Watt University, Edinburgh
Supervised Projects and Labs (full semester) for course **Scalable Inference and Deep Learning** to BEng (Hons) and MSc Applied Data Science students
Course Lead: Prof. Yves Wiaux

March 2019 - May 2019, Teaching Assistant at Heriot-Watt University, Edinburgh
Taught course (for 6 hours) **Embedded Systems** to BEng (Hons) students
Course Lead: Asst. Prof. Sen Wang
Supervised Projects: 4th year BEng (Hons)

Sept 2012 - Sept 2015, Teaching Assistant at Université Jean Monnet, Saint-Etienne, and Télécom Saint-Etienne
Taught courses such as Color Science, Digital Image Processing, Image Reconstruction, Computer Vision, Data Analysis and Statistics Master students in Computer Science and Telecommunication .
Supervisor: Prof. Alain TRÉMEAU

Industrial Experience

Nov 2006 - May 2010, Embedded System Design Engineer at **ID Technologies, Pune**
Responsibilities: Design and development of electronic circuits and embedded software for industrial grade printer.

Education

PhD (10/2012 - 01/2016) at Université Jean Monnet, Saint-Etienne, France
Thesis Topic: **Contributions to Image Restoration**: *From Optimization Strategies to Blind Deconvolution and Shift-variant Image Restoration*.
Supervisors: Asst. Prof. Loïc DENIS, Astronomer Éric THIÉBAUT and Prof. Jean-Marie BECKER.

MSc (09/2010 - 06/2012) at Université Jean Monnet, Saint-Etienne, France
Erasmus Mundus Master CIMET (Optique Image Vision): Grade: B+
Master Thesis: **Modeling and Analyzing Color Dynamic Textures**
Supervisors: Prof. Olivier ALATA, and Prof. Alain TRÉMEAU
Courses: Digital Image Processing, Optical Image Processing, Spectral Imaging, Data Analysis, Pattern Recognition, Human and Computer Vision, Color Science, Computational Color, Display Technology, etc

Bachelor of Engineering (09/2002 - 10/2006) at University of Pune, India
Electronics and Telecommunication, Grade: First Class (65%)

Online Certifications

Deep Learning Specialization (04/05/2020) by Prof. Andrew Ng on Coursera: Credential ID: EK9LSRPZV9BN

Computer Vision I (19/04/2020) by Dr Staya Mallick (CEO OpenCV) on Learn OpenCV: Certificate Link

Soft Skills

Programming Languages and Software
- C/C++
- Python
- LaTeX
- MATLAB
- Julia
- Microsoft Office

Operating Systems
- Windows
- Linux
- RTOS

Spoken Languages
- Nepali (Native)
- Hindi (C1)
- English (C2)
- French (A2)

Awards and Fellowships

- Best Student Paper Award at EUSIPCO 2015, Nice
- Agence Nationale pour la Recherche (ANR), France Postdoctoral Fellowship
- Region Rhône-Alpes PhD Fellowship Award
- Region Rhône-Alpes Explo'Ra grant Erasmus exchange program
- Indian Council for Cultural Relationship scholarship for pursuing bachelor of engineering at University of Pune

List of Publications

Peer Reviewed Journals

- **Mourya, R.**, Dragone, M., and Petillot, Y.R. "Robust Silent Localization of Underwater Acoustic Sensor Network Using Mobile Anchor(s)", Sensors 21(3), 2021.
- Sangeeta, S., Tiwari, L., Ranjan, R., Verma, A., Sardana, N., and **Mourya, R.** "Analysis and Classification of Crime Tweets", Procedia Computer Science, 167(1), 2020
- Denis, L., Thiébaut, E., Soulez, F., Becker, J-M., **Mourya, R.** "Fast Approximation of Shift-Variant Blur", International Journal of Computer Vision, April 2015.

Conferences

- **Mourya, R.** and Mota, F.C.J. , "MCNet: Measurement-Consistent Networks via a deep implicit layer for solving inverse problems", accepted at ICASSP 2023
- Sangeeta, S., Jiaswal, R., Sardana, N., Verma, A., Kaur, A., and **Mourya, R.** , "ORFDetector: Ensemble Learning Based Online Recruitment Fraud Detection", in International Conference on Contemporary Computing, 2019
- Morozs, N., Mitchell, P.D., **Mourya, R.**, et al. , " Robust TDA-MAC for practical underwater sensor network deployment: Lessons from USMART sea trials" in ACM International Conference on Underwater Networks & Systems, 2018
- **Mourya, R.**, Saafin, W., Dragone, M., and Petillot, Y.R., "Ocean Monitoring Framework based on Compressive Sensing using Acoustic Sensor Networks" in OCEANS, 2018
- **Mourya, R.**, Bianchi, P., Salim, A., and Richard, C. "An Adaptive Distributed Asynchronous Algorithm with Application to Target Localization", in CAMSAP, 2017
- **Mourya, R.**, Ferrari, A., Flamary, R., Bianchi, P. and Richard, C. "Distributed Approach for Deblurring Large Images with Shift-Variant Blur", EUSIPCO, 2017.
- Thiébaut, E.,Dénis, L. and Soulez, F. and **Mourya, R.** "Spatially variant PSF modeling and image deblurring", in SPIE Astronomical Telescopes+ Instrumentation, 2016.
- **Mourya, R.**, Denis, L., Thiébaut, E., Becker, J-M., "Augmented Lagrangian without Alternating Directions: Practical Algorithms for Inverse Problems in Imaging", in IEEE ICIP 2015, Quebec, Sept, 2015 *(was selected among "Top 10% Papers")*.
- **Mourya, R.**, Denis, L., Thiébaut, E., Becker, J-M., "A Blind Debluring and Image Decomposition Approach for Astronomical Image Restoration", in EUSIPCO 2015, Nice, Aug 2015 *(was awarded "Best Student Paper")*.
- **Mourya, R.**, Dubois, S., Alata, O., Tremeau, A., "Improving Dynamic Texture Recognition by using a Color Spatio-Temporal Decomposition", in EUSIPCO 2013, Marrakeck, Morocco, Sept 2013.

Presentations at Conferences and Workshops

- IMA Conference on Inverse Problems from Theory to Application, 2021, Edinburgh, UK
- OCEANS, 2018, Charleston, SC, US
- International Conference on Image Processing, 2015, Quebec, Canada
- European Signal Processing Conference, 2015, Nice, France
- International Conference on Image Processing, 2014, Paris, France
- CIMI workshop on Optimization and Statistics in Image Processing, 2013, Toulouse, France

References/Academic advisers

Dr Consolée Mbarushimana c.mbarushimana@wlv.ac.uk, Head of Computing and Mathematical Sciences, University Of Wolverhampton, UK, Tel. +44 (0)1902 322912

João F.C. MOTA (j.mota@hw.ac.uk), Asst. Prof. at Institute of Signal, Sensors and System, Heriot-Watt University, Riccarton Campus, Edinburgh

Yvan PETILLOT (y.r.petillot@hw.ac.uk), Prof. at Institute of Signal, Sensors and System, Heriot-Watt University, EM2.23, Riccarton Campus, Edinburgh , Tel. +44 (0)131 451 8277

Loïc DENIS (loic.denis@univ-st-etienne.fr), Prof. at Université Jean Monnet, Bât. F, 18 rue B. Lauras F-42000 Saint-Etienne, France Tel. (+33) 04 77 91 57 66

Linkedin Profile: `https://www.linkedin.com/in/rahulmourya/`
Researchgate Profile: `https://www.researchgate.net/profile/Rahul_Mourya`