

KUMARI POOJA



PROFILE

- Multiple research experiences in Machine Learning, Imaging (Medical Imaging, Hyperspectral), Computer Vision and Applied Mathematics.

CONTACT

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- 📍 Nanterre, France
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- 📄 scholar.google/KPooja

SKILLS

Programming

Python, Jupyter-Notebook ●●●●●
C/C++ ●●●●●
LaTeX ●●●●●

Operating Systems

Linux, Windows ●●●●●

Software & Tools

Visualisation ●●●●●
(e.g. matplotlib, R, ...)
Data handling/analysis ●●●●●
(e.g. numpy, scipy, pandas, ...)
Keras, Tensorflow ●●●●●
PyTorch ●●●●●
GitHub, Gitlab ●●●●●
HPC ●●●●●

Languages

English ●●●●●
French ●●●●●

CONFERENCES, HONORS & CERTIFI.

- Attended **NeurIPS@Paris 2022** (23 - 24 Nov. 2022)
- Poster presentation in IEEE ISBI 2022 & IEEE WHISPERS 2019.
- Selected as young mentor 'Women in Medical Imaging' at IEEE ISBI 2022
- ML Summer School (🌐PAISS 2021 & AI4SIP 2022)
- UCL Medical Image Computing Summer School (MedICSS) 2021
- Department of Space (DoS), Govt. of India undergraduate Studentship
- Python Data Str. & Algo. 🌐inLearning
- Software Engineering in Python 🌐Data-Camp

RESEARCH EXPERIENCES

Research Engineer

📍 Neurospin, CEA Paris-Saclay / Inria-MIND, France 📅 01/2022 - present

- Generating SPARKLING traj. (optimized acquisition) for Very Low Field MRI (ANR-VLFMRI) premature newborns (10 mT)
- Python based Algorithm development EPI-SPARKLING, optimization algorithm to design efficient sampling patterns for MRI.
- Benchmarking of optimization based MRI reconstruction using PySap-MRI through BenchOpt python library 🌐GitHub.
- **skills & tools used:** Linux, HPC, Python, OOP, Git, Optimization, Medical Imaging

Master Thesis Student

📍 Neurospin, CEA Paris-Saclay / Inria-Parietal, France 📅 03/2021 - 09/2021

- CS Multi-contrast MRI reconstruction, developed deep learning model (PDHG optimization- based CNN): MC-PDNet to improve reconstruction quality. (K. Pooja et al. 🌐IEEE)
- Handled 3T MRI DICOM data to form Multi-contrast (T2 GRE, FLAIR) Nifti dataset.
- Implemented all the ML pipeline: preprocessing, augmentation, training/testing, Hyperparameter tuning, Visualisation 🌐GitHub
- Metrics evaluation and compared with state of the art UNET, PDNET, DISN-5B
- **skills & tools used:** Linux, Python, OOP, Git, Tensorflow, Deep Learning, Medical Imaging

Student Assistant

📍 Helmholtz-Zen. Dresden-Ros. (HZDR) - HiF, Freiberg, Germany 📅 07/2020 - 09/2020

- Big data handling of Sentinel 2 markanos data using ENVI & MATLAB to use a subset
- Implementation of c-GAN to convert Image to Digital Surface Model translation
- **skills & tools used:** Python, HPC, Hyperspectral, Tensorflow, Keras, Deep Learning

Bachelor Thesis Student

📍 Indian Institute of Space Sc. & Tech. (IIST), Trivandram, India 📅 12/2018 - 05/2019

- Data handling of Aviris NG & hyperspec. data using Hypersec VNIR camera
- Developed MDR-CNN to utilize receptive field (using mutli-scaling & dilation) for hyperspectral classification on sub-sampled ground truth. (K. Pooja et al. 🌐IEEE)
- Implemented the ML pipeline: preprocessing, augmentation, training/testing, Hyperparameter tuning, Visualisation
- **skills & tools used:** Python, HPC, Hyperspectral, MATLAB, ENVI, Tensorflow, CNN

EDUCATION

Master in Informatics (M2- GVR MoSIG) : Graphics, Vision & Robotics

📍 Grenoble INP - ENSIMAG, Grenoble, France 📅 09/2020 - 07/2021

- Mention : **Bien**, Spec. - Computer Vision, Deep Learning, Medical Image Analysis, Machine Learning Fundamentals.

Master in Computer Vision (M1-VIBOT)

📍 Universite de Bourgogne, Le Creusot, France 📅 09/2019 - 07/2020

- **2nd Rank**, Spec. - Computer Vision, AI/ML, Medical Image Analysis


B.Tech. in ECE (Avionics)



📍 Indian Institute of Space Sc. & Tech. (IIST), Trivandram, India 📅 08/2015 - 05/2019

- Major in Machine & Deep Learning

PUBLICATIONS


MC-PDNET: Deep unrolled neural network for multi-contrast mr image reconstruction from undersampled k-space data



 **Kumari Pooja**, Zaccharie Ramzi, GR Chaithya, Philippe Ciuciu

 2022  2022 IEEE 19th International Symposium on Biomedical Imaging (ISBI)

 [IEEE](#)

Multi-scale dilated residual convolutional neural network for hyperspectral image classification

 **Kumari Pooja***, Rama Rao Nidamanuri*, Deepak Mishra*

 2019  2019 IEEE 10th Workshop on Hyperspectral Imaging and Signal Processing: Evolution in Remote Sensing (WHISPERS)

 [IEEE](#)