Chinmay SAMANT

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Summary

- PhD research scientist with a strong backround in medical imaging and **automatic control of MRI machine** along with international publications in medical robotics.
- Extensive image processing experience in multimodal medical images (Optical, **CT/MRI**, Ultrasound) demonstrated via several projects that include denoising, classification, tracking and registration using OpenCV(C++), Matlab, Python etc.
- Self-motivated, autonomous and multilingual individual accustomed to international working environment having an analytical, entrepreneurial mindset.

Key industry skills

Scientific communication	Public speaking	Python, C/C++, Matlab
Critical analysis	International consulting	OpenCV, Eigen, TensorFlow
Project and time management	Resource management	Optimization, Product Design

Languages: English (fluent), French (B1+), Marathi (native), Hindi, Konkani, Portuguese

Work experience

Freelance consultant for investment banking — Strasbourg, France
ML Engineer — 03/2019 – Present
Profit optimization in automated trading strategies
- **Multivariate logistic regression** based algorithms in Python using Pandas and Numpy libraries
- TensorFlow based ANN algorithm in progress
- Client: WeatherStorm Capital, California, USA

Siemens-Heathineers — Strasbourg, France
Engineer — 11/2015 – 10/2018
Ultrasound Probe Calibration and Positioning
- **Optimization** based outlier removal in sensor data to track laparoscope
- Prototype ultrasound probe integration into an on-site ultrasound machine
- Interaction with surgeons in live-surgery for their feedbacks

ICUBE-CNRS, University of Strasbourg — Strasbourg, France
Master Thesis Intern/Research Engineer — 02/2015 – 10/2015
Automatic control of MRI machine using MR image tracking
- **Model predictive approach** based on novel shape metric for detection and tracking marker
- **Real-time control** of **MRI** machine based on **automatic tracking**
- Implementation in C++ using OpenCV and Eigen libraries

LE2i-CNRS, University of Bourgogne-FrancheComté — Le Creusot, France
Intern — 06/2014 – 08/2014
Wood pattern analysis and classification using machine learning
- Age and quality determination of wooden planks using machine learning
- Comparative study of multiple classifiers such as **SVM, K-means, Random Forest** etc.

Education

PhD in Robotics/Computer Vision Strasbourg, France
University of Strasbourg 11/2015 – 12/2019
Ultrasound laparoscopic guidance for minimally invasive surgery, biopsy, and ablation procedures
- Hand-Eye Calibration based on **semi-definite programming optimization**
- **Indoor positioning of medical instrument** using IMU-camera sensors
- Convex Optimization based approach for outlier estimation and removal
- CIFRE scholarship for industrial PhD with Siemens-Healthineers
- A+ level international conference publication at IROS 1029 (Macau, China), among others

Masters in Computer Vision Le Creusot, France
University of Bourgogne-FracheComté 09/2013 – 08/2015
(Erasmus Mundus Vision and Robotics Program)
- Image Processing, Medical Imaging, 2D/3D Computer Vision, Scene Segmentation and Registration, Visual Tracking
- Machine Learning, ANN, Autonomous, Probabilistic Robotics, Localization, Visual Servoing
Relevant Projects:
- Medical imaging software for **volume reconstruction of CT/MRI prostate** images
- OpenCV (C++) and Matlab based image processing toolbox
- Kohenen machine learning network for patient data classification

Masters in Electronic Science Pune, India
Univercity of Pune 08/2010 – 04/2012
- Embedded systems design, Digital Signal Processing
- Analog and power electronics design, Mechatronics
- First prize for master's thesis

Bachelors in Electronic Science Pune, India
University of Pune 07/2007 – 04/2010
- Mathematics Physics, Statistics

Publications

1. Robust Hand-Eye Calibration via iteratively re-weighted rank-constrained semi-definite programming, in IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2019, Macau, China
2. Robust laparoscope body calibration using Hand-Eye Calibration methods, in 9th CRAS and 30th SPIGC unite at a joint conference 2019, Genoa, Italy
3. Poster on Hand-Eye calibration for surgeries using ultrasound laparoscope, in Congrès National d'Imagerie du Vivant - CNIV 2019, Paris, France
4. Fluid density measurement with ultrasound sensor, Raman memorial conference (RMC), 2013, Pune, India

Affiliations and hobbies

Permit de conduire B; Music (Guitar, Singing), Sports (Badminton, bicycling), RC airplane builds