Chinmay SAMANT

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Summary

- PhD research scientist with a strong backround data management for finanace, computer vision and robotics applications with international publications in deterministic machine learning approaches.
- Extensive ML experience in financial data processing, image analysis, autonomous MRI navigation and outlier data removal using OpenCV (C++), TensorFlow and Pandas (Python), Gloptipoly and Optimization Toolbox (Matlab, Maple).
- Self-motivated, autonomous and multilingual individual accustomed to international working environment having an analytical, entrepreneurial mindset.

Key industry skills

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

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

Relevant 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

- **Deterministic AI** approach to outlier removal in **sensor data**
- 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
Research Engineer — 08/2015 – 10/2015
Detection and visual tracking of a marker in MR images

- **Model predictive approach** based on novel shape metric for detection and tracking marker
- Real-time data **acquisition** and 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
- Determinisitc AI approach for outlier estimation and removal in **noisy data**
- 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)

- Machine Learning, ANN, Autonomous, Probabilistic Robotics, Localization, Visual Servoing
- Image Processing, Medical Imaging, 2D/3D Computer Vision, Scene Segmentation and Registration, Visual Tracking

Relevant Projects:

- **Face detection** using Eigen image-based dataset
- Kohenen machine learning network for **patient data classification**
- **Medical imaging** software for volume reconstruction

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

Music (Guitar, Singing), Sports (Badminton, bicycling), RC airplane builds