

ARUNKUMAR PANDIAN

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Objective To pursue an enthralling career that provides intellectual empowerment, fast paced career acceleration and an open and friendly environment that encourages creativity.

Education **2006 – 2008** **MSc Computer Vision & Robotics**
Heriot-Watt University (UK), Universitat de Girona (Spain)
and Université de Bourgogne (France).
First Class with distinction.

2002 – 2006 **B.Tech Electronics & Communication Engineering**
Pondicherry Engineering College, Pondicherry University (India).
89.8% - Gold medallist.

Technical Expertise **Thesis:** Robotic navigation using stereoscopic vision and polarization imaging

The objective of the master's thesis to be undertaken in collaboration with the LAAS (**CNRS**, Toulouse, France) is to develop a stereoscopic bench prototype that combines concepts from stereo vision and polarization imaging in order to detect water bodies. In real time, the system has to provide 3D information to a robot and prevent it from moving towards a stretch of water. It has been planned to employ a calibrated stereo system mounted with two polarizers whose mutual inclination is to be chosen to suit the detection of water in outdoor scenes under different environmental conditions. This work would empower a robot with information from polarization in-addition to its colour vision which would increase its robustness in obstacle detection and navigation. It is intended to first evaluate the system in Matlab and then implement it in C++.

- Areas of interest
C Programming, Software Engineering, Digital signal processing, Linear and Digital Control Systems, VLSI Design, Image processing, Mobile communication, Stereo vision, Machine learning, Pattern recognition and Digital electronics.
- Programming Languages, Packages and Open source Libraries
C, Assembly language (8085), Handel-C, MATLAB R2006b, LabVIEW, PSPICE, and OpenCV(Linux).
- Projects undertaken
 - Undergraduate thesis (Team project): Design of a secure digital communication system using chaotic cryptography.
 - Implementation of a basic vowel detector based on matched filtering.
 - Implementation of image watermarking algorithms in MATLAB.
 - Implementation of an object tracking algorithm in a RC10 FPGA board using Handel-C.
 - 3D reconstruction of the heart from short axis MRI slices in MATLAB and VTK.
 - Implementation of a Behaviour based control architecture for autonomous robot navigation in MATLAB.
 - Design, implementation and testing of a C program that performs histogram analysis of images captured by a web camera in Linux.

- Training / Seminars attended
 - Software course on “**Programming through C**” developed by IBM.
 - “**Advanced Diploma in Computer Hardware & Networking**” at Institute of Electronics & Computers, India.
 - Participated in the “**Embedded Systems & VLSI Workshop**” organized by the College of Engineering, Guindy, Anna University, India.
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Achievements

- Awarded the **Gold Medal** from Pondicherry University (India) for securing the first rank among the students of all the Engineering colleges accredited to Pondicherry University (approximately 2000 students).
 - Received the following awards for having the best academic record among the undergraduate students at Pondicherry Engineering College, India.
 - **Gold medal** (Lt. Governor’s Prize)
 - **Mrs. Lakshmi Kuppaswamy Memorial Prize**
 - **Khirode Bose Memorial Award** (Best outgoing student award)
 - Awarded an Erasmus Mundus grant of € 42000 for the master’s course on Computer Vision and Robotics (world-wide competition).
 - **Other Scholarship offers (not used)**
 - Felix Scholarship at the University of Reading
 - University of Leicester – Department of Engineering Scholarship for Indian students
 - Loughborough University (£1000 Bursary Award)
 - Erasmus Mundus Scholarship for the MERIT Master’s course
 - Erasmus Mundus Scholarship for the master’s course on Network and e-Business centered computing
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Language skills

- **English**
 - Medium of instruction in Schools and University
 - GRE - Verbal Section: **650 / 800** Quantitative Section: **800 / 800**
 - **French**
 - Awarded the Diplôme d’Etudes de Langue Française (**DELF**) **Level A2** in 2007.
 - **Tamil**
 - Mother Tongue (Tamil is one of the official languages in India, Sri Lanka and Singapore and is also spoken by minorities in Malaysia and Mauritius.)
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Extra Curricular Activities

Positions held

- **Executive Member** of Genesis (National Level Technical Symposium)
Raised Rs.10,000/- within a short period of 2 months, planned several events and also coordinated a class of 66 undergraduate students.
- **Head of the Logo design committee** of the technical magazine E&C Info
Consolidated ideas from a group of 4 students to design a novel logo.

Prizes Won

- Won the first prize in the Technical Quiz Competition (Vikramam) held at Teletec '06 (National Level Technical Symposium).
- Received the first prize for the paper on "**Chaotic Cryptography**" presented at TECHNOSPARK'05, a National Level Technical Symposium.
- Awarded the first prize in the Drawing Competition organized by the "Dept. of Health and Family Welfare Services, Government of Pondicherry".
- Secured the first place in the Instrumental Music Competition (Violin) organized by KKIVK, Pondicherry.

References

Available upon request.
