

Curriculum Vitae

Puneet Chhabra

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Education

M.S. Erasmus Mundus Masters in Computer Vision and Robotics (VIBOT), Heriot Watt University, Edinburgh (Oct'07-Feb'08) University of Girona, Spain (Feb'08-Jul'08) and Université de Bourgogne, France (Jul'08-Jun'09), 2009 (Expected)

B.S. Artificial Intelligence and Robotics, Merit International Institute of Technology, India, 2006

Employment

Industry Placement

Bristol, UK
<http://www.baesystems.com>

BAE SYSTEMS LIMITED, UK.
January, 2009 – present

Project – Integrated Capability & Technology Programme 2009, Video Change Detection in time-variant background: Real-time event detection and tracking for Unmanned Aerial Vehicles (UAV) application.
Department – Advance Technology Center, Filton, Bristol.

Studentship

Edinburgh, UK
<http://www.seebyte.com>

Seebyte Ltd., Edinburgh, UK.
July, 2008 – September, 2008

Project – Identifying lines and planes in acoustic images for 3D reconstruction of unknown ship hull using vehicle navigational and sensor data.
Department - Technologies Engineering Team

Full-Time Technical Infrastructure Architect (Wintel)

Bangalore, India
<http://www.ibm.com/in>

IBM India Pvt Ltd.
February, 2007 – August, 2007

Wintel Infrastructure Server support: Expertise in IBM Tivoli Monitoring, IBM Tivoli Enterprise Console, IBM Tivoli Netview, monitoring and managing backups, VERITAS Netbackup Administration Console, SQL.

Senior Research Engineer

Noida, India
<http://www.iurs.org>

Indian Underwater Robotics Society
October, 2005 – November, 2007

Developed a novel navigation algorithm for autonomous underwater robots that allows navigation under location uncertainty using a neural network of an active sonar array. Autonomous vehicular recovery systems based on passive sonar beacons.

Work/ Communication

- Senior Research Engineer at Indian Underwater Robotics Society, Noida, India
- Member of Robotics and R/C club at Heriot Watt University, Edinburgh
- Have been interacting with several people from various academic departments spread over different universities in Edinburgh to collect Research and Development news.
- Since the age of 13 I have been traveling and have learnt a lot on self management and communication with people from varied cultures and backgrounds.
- Languages: English, Hindi, Punjabi, Spanish (Basic Survival Course)
- Student representative 2004-2006. Gave several presentations on student life and time management and also carried out short tours for groups of 25.

IT Skills

Programming:	C/C++, OOP, MATLAB, OpenCV, Java, VB.net, ADO.net, UML
IDE's:	Visual Studio 2005, Solid Works, Visual Nastran
Operating Systems:	WindowsXP/2000/2003, FC8
Administration/Networking: Profound knowledge:	AD, Windows 2003 Systems Administration, Microsoft Exchange Server. Computer Systems Architecture, Programming, Robotic Manipulators, Computer Based Simulations, Electrical & Electronic Systems, Long -term Deployment Unmanned Systems, Cooperative Robotics, Robotic Localization and SLAM, Digital & Analog Signal Processing, Sensor Networks

Awards

Erasmus Mundus Scholarship (VIBOT), Heriot Watt University, Edinburgh, University of Girona, Spain and Université de Bourgogne, France 2007 – 2009.

Highest GPA award in Bachelor's 2002 - 2006.

Best paper presentation award on 'Modern Simulation Tools for Autonomous Robots'.

Problem Solving

I have always been a team player and also work efficiently alone in situations.

Computer Vision - Image Processing

Scene Segmentation and Interpretation

- * Scene Segmentation - Region Growing
- * Image Characterization - Texture analysis.
- * Pascal- Visual Object Classification System

Visual Perception

- * Self-calibration of Stereo Camera
- * Corner Detection - A comparative approach
- * Reconstruction from Two views - Epipolar Geometry
- * Rigid 3D reconstruction of structure from motion in Images
- * Solving Image correspondence problem using SIFT

Real Time Image Processing

- Object Tracking (Hand - counting the fingers) in real time
 - o Tools used: Handle-C, DK Design Toolkit and Celoxica RC-10 board.

Data mining and machine learning – Identifying Fashion in Virtual Reality game, SecondLife

This project involves in demonstrating how to discover fashions in Second Life. A decision tree based algorithm was implemented with skills and insights from the Data Mining and Machine Learning module at HW University. Second Life is a virtual world, <http://www.secondlife.com/> Linden Research runs second Life. The aim of the project is Data gathering and implementing machine learning techniques.

Since October 2006 I have been an active technologies engineer with IURS, providing solutions on underwater robotic systems. Researched and developed a novel navigation algorithm for autonomous underwater robots that allows navigation under location uncertainty using a neural network of an active sonar array.

Designed and developed an Image Processing software application for Linux environment using C++ and OpenCV for Image manipulation, translation, filtering and to gather statistical data.

Software design model was developed in C++ for an Automobile showroom to automate its Sales and services. The customers and the administration could browse through the resources available with separate dedicated systems for customers and Administration.

Software Design model was designed for palm held devices. This project was developed of 'Amrit Paints and Chemicals'. India. The sales and marketing division can enter the sales data and transferring it to a central server immediately. Also enables the administration to keep track Of the current stock available in each category of paints. Technology used: .NET/MS SQL.

In a team of two designed a robotic arm prototype, six-legged robot at IIIT and MIIT, India.

Publications

PUNEET SINGH, ANUJ SEHGAL, PARTH SHAH AND JASON KADARUSMAN, "Autonomous Underwater Unmanned Vehicular Recovery System based on Low-Cost Inter-Aural Time Differentiation Passive Sonar," *Proc. 15th Mediterranean Conference on Control and Automation, Athens, Greece, 27 Jun -29 Jun 2007*

JASON KADARUSMAN, ANUJ SEHGAL, KUMAR GARVIT, PARTH SHAH, PUNEET SINGH, "CoViS: An Amphibious Computer Vision System," *Proc. 15th Mediterranean Conference on Control and Automation, Athens, Greece, 27 Jun - 29 Jun 2007*

ANUJ SEHGAL, JASON KADARUSMAN, PUNEET SINGH, PARTH SHAH, KUMAR GARVIT, "International Underwater Robotics Competition oriented Low-cost Light Weight Autonomous Underwater Vehicle Design," *Proc. Robotica 2007 Conference, Paderne, Portugal, 27 Apr 2007.*

PUNEET SINGH, ANUJ SEHGAL, "Computer Vision, Sonar and Sensor fusion for Autonomous Underwater Vehicle (AUV) Navigation," *Proc. Ciencia '06, Hyderabad, India, 06 Mar - 08 Mar 2006*

Communication/Workshops

Introduction to Mobile Robotics
July 31-August 4, 2006
Reuben H. Fleet Science Center, San Diego, USA

Introduction to Underwater Robotics
March 8-March 11, 2007
National Institute of Technology-Karnataka, Surathkal

Interest and Leisure

Mountain Biking: Formed a mountain biking club at MIIT in India.

I enjoy playing badminton and table tennis, computer games and cooking.

Enjoy reading books on travel & living also plays music, Indian classical instrument Tabla and mouth organ.

Traveling is hobby and I have visited USA, France, and Germany, would like to visit Eastern Europe and Russia. Currently I am in Scotland and love traveling to highlands and coast.

Personal Details

Name: Puneet Chhabra

Passport Number: E9210469

Date of Birth: 16-02-1985

Nationality: Indian

References

Pr. Fabrice Mériaudeau

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17071 Girona, Spain
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Dr. David Fofi

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