

Anwesan Pal

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A Graduate in Electrical Engineering, currently pursuing Doctor of Philosophy (Ph.D.) degree in Computer Science and Engineering at UC San Diego. Interested to pursue research in challenging domains in the field of Computer Vision and Machine Learning/AI with focus on semantic scene understanding.

EDUCATION

Academic Qualifications.....

Doctor of Philosophy (Ph.D.)

Computer Science and Engineering, UC San Diego

Advisor: Dr. Henrik I. Christensen

La Jolla, USA

2019 - Present

Master of Science (M.S.)

Electrical and Computer Engineering, UC San Diego

Advisors: Dr. Henrik I. Christensen & Dr. Nuno Vasconcelos

Title: Learning Application-Oriented Classifiers for Multi-frame Visual Recognition

La Jolla, USA

2017 - 2019

Bachelor of Engineering (B.E.)

Electrical Engineering, IEST Shibpur

Advisors: Dr. Aparajita Sengupta & Dr. Suvarun Dalapati

Title: Fabrication of Prototype Apparatus for Control Systems Laboratory Experiment

Shibpur, India

2013 - 2017

PUBLICATIONS

Accepted.....

- Y. Qiu*, A. Pal*, and H. I. Christensen, "Learning hierarchical relationships for object-goal navigation," in Conference on Robot Learning (CoRL), Cambridge, USA, Nov. 2020. (acceptance rate - 34%)
- A. Pal, S. Mondal, and H. I. Christensen, "'Looking at the right stuff" - Guided semantic-gaze for autonomous driving," in Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), Seattle, USA, Jun. 2020. (acceptance rate - 22.08%)
- A. Pal, C. Nieto-Granda, and H. I. Christensen, "DEDUCE: Diverse scENE Detection methods in Unseen Challenging Environments," in Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Macau, China, Nov. 2019.

Ongoing.....

- H. Xiang, A. Pal, Y. Qiu, Q. Li, and H. I. Christensen, "Knowledge-based trajectory prediction with attentive intent"

PROJECTS

Research Projects.....

Object-Based Mapping

Supervisor - Prof. Henrik I. Christensen

- Object recognition for robot localization and mapping in unknown scenes

UC San Diego

Jun 2018 - Present

Multi-frame Visual Recognition

Supervisor - Prof. Nuno Vasconcelos

- Studied *bias* of action-recognition datasets towards different *representations* and *algorithms*

UC San Diego

Jan 2018 - Aug 2018

*Equal Contribution

Human Activity Recognition

Supervisor - *Prof. Tajana S. Rosing*

UC San Diego

Jan 2018 - Jun 2018

- Aided in indoor localization through *Huawei 2* smart-watch
- Transmitted data of *step count, heart rate, accelerometer, and gyroscope* to local server via *MQTT*

Academic Projects.....

Object Detection in the Autonomous Driving Scenario

Course - *ECE 285* Grade: *A+*

UC San Diego

Mar 2019 - Jun 2019

- Evaluated the performance of three state-of-the-art multi-object detectors on a self collected autonomous driving dataset
- Proposed an algorithm for predicting sub-classes of a car object for fine-grained analysis through an end-to-end deep network

AgeGAN: Age Progression/Regression and Estimation

Course - *COGS 260* Grade: *A*

UC San Diego

Mar 2018 - Jun 2018

- Generated future and past estimates of a face from given input image
- Estimated accurate age-group from a given input image as an unsupervised learning problem

Optical Flow-based Video Classification with Visual Attention

Course - *ECE 271B* Grade: *A*

UC San Diego

Jan 2018 - Mar 2018

- Classified human gestures from video sequence with higher accuracy compared to state-of-the-art methods
- Applied Visual Attention module to Flow-based Recurrent Neural Networks

Fabrication of prototype apparatus for Control Systems Laboratory Experiment

Course - *EE 854* Grade: *A*

IEST Shibpur

Jul 2016 - May 2017

- Designed a *Linear State Variable Feedback (LSVF)* Controller for low-gain applications
- Fabricated the prototype in a dotted Veroboard

EXPERIENCE

Research Oriented.....

Graduate Research Assistant

UC San Diego

La Jolla, USA

Sep 2018 - Present

I am working in the Cognitive Robotics (CogRob) Laboratory. My task is to develop a mapping algorithm which takes into account the presence of objects in the surrounding in order to perform place categorization and exploration.

Summer Research Fellow

UC San Diego

La Jolla, USA

Jun 2018 - Aug 2018

I was working in the Statistical Visual Computing Laboratory (SVCL). My task was to take a deeper look into the bias of action recognition datasets towards different representation features and algorithms.

Summer Research Intern

Paris VIII University

Paris, France

May 2016 - Jul 2016

I was selected as a funded Summer Intern to conduct research in the area of Computer Vision. My task was to define algorithms for behavior of multiple agents of the NAO Humanoid, and simulate them using CABSL/XABSL. The goal of this research was to find simpler ways to simulate the agents as an improvement over those published by B-Human.

Summer Research Intern

BITS Pilani Goa Campus

Goa, India

May 2015 - Jun 2015

I was selected as a funded Summer Intern to work in the area of Embedded Systems. I studied about the existing embedded systems and micro-controllers. Then I implemented the knowledge thus acquired by programming the omni-directional robot Firebird V to follow a series of patterns.

Teaching Oriented.....

Graduate Teaching Assistant

Course - PHYS 120

UC San Diego

Mar 2018 - Jun 2018

- Responsibilities: Proctored laboratory sessions, graded assignments and occasionally presented lectures
- Class strength: ~ 80 upper-division undergraduate students

Graduate Teaching Assistant

Course - ECE 276A

UC San Diego

Sep 2017 - Dec 2017

- Responsibilities: Held discussion sessions and graded assignments
- Class strength: ~ 120 graduate students

AWARDS AND ACHIEVEMENTS

- Awarded Graduate Fellowship for Doctoral study by the CSE Department at UC San Diego
- Awarded Summer Research Fellowship by the ECE Department at UC San Diego to conduct research in a laboratory environment
- Only student in the batch to be a Teaching Assistant for a graduate-level course in the ECE Department in the first quarter in UC San Diego
- Attained perfect CGPA of 10.0 (out of 10) in class X. Received Scholarship and Letter of Recognition from Minister of Education, Govt. of India
- Stood 2nd in *WIRED-IN* – the Electrical/Electronics Design contest held in INSTRUO 2015, technical festival of IEST, Shibpur

TEST SCORES

Graduate Record Examination (GRE).....

Verbal - 151, Quantitative - 168, Analytical Writing - 4.5

Test Of English as Foreign Language (TOEFL).....

Reading - 26, Listening - 26, Speaking - 24, Writing - 27

English Language Certification Exam (ELCE) - conducted by UC San Diego.....

Pass with a grade of 4/4

SKILLS

- **Programming Languages:** Proficient in: Python, Matlab, C/C++
- **Deep Learning Frameworks & Tools:** PyTorch, TensorFlow, Keras, Caffe, Simulink
- **Operating Systems:** Linux, Windows, MacOS, Robot Operating System (ROS)
- **Languages:** Proficient in: English, Hindi. Native: Bengali

INTERESTS

- Teaching Physics, Mathematics and Computer Science to high school students.
- Solving puzzles, reading science-fiction, watching detective sitcoms in English.
- Listening to light music, playing video-games at off-time.

REFERENCES

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