

PRONNOY GOSWAMI

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EDUCATION

Virginia Tech, Blacksburg, Virginia

Aug 2018 - Present

Master of Engineering, Computer Engineering

Specialization: Software and Machine Intelligence

Delhi Technological University, Delhi, India

Aug 2012 - Jun 2016

Bachelor of Technology, Software Engineering

Percentage - 81.2

First Class with Distinction (Ranked 3rd in a class of 96)

RESEARCH INTERESTS

Computer Vision, Image Processing, Scene Understanding problems, Autonomous Systems, Machine Learning, Data Science, Large-scale optimization, Artificial Intelligence, Web Development, Database and Infrastructure Management, Distributed Systems, Cloud Services, DevOps

WORK EXPERIENCE

McKinsey & Company

Jul 2016 – Jul 2018

Digital Analyst (Software Engineer II)

Gurgaon, India

- Worked as a backend developer - to develop an insight-driven client service platform that helps clients in optimizing their cost using certain methods like zero-based budgeting, optimizing functional costs etc.
- Designed caching layer to reduce network latency and enhance concurrency in the micro service architecture.
- Was responsible for development of the core micro-service which did the expense calculations.
- Designed the complete deployment pipeline for the application for various various environments using CircleCI, Docker and Terraform scripts
- The product is serving 200+ active clients across various geographies at McKinsey & Company

RESEARCH PROJECTS & INTERNSHIPS

Autonomous Underwater Vehicle, Delhi Technological University

Sep 2012 – May 2016

Undergraduate Researcher & Software Development Lead (Computer Vision & Software Development)

Delhi, India

- Worked under the mentorship of [Dr. R.K. Sinha](#) and [Dr. Ajeet Kumar](#) to develop computer vision algorithms for detection and localization of underwater objects using OpenCV and MATLAB
- Developed mission planning module to enable multi-tasking of processes using Robot Operating System
- Migrated the complete computer vision and mission planner module from NI LabView to Linux and ROS

Software Engineering and Machine Learning Lab, Delhi Technological University

Aug 2015 – Jun 2016

Research Assistant (Data Science & Machine Learning)

Delhi, India

- Worked with [Dr. Ruchika Malhotra](#) to complete undergraduate thesis on “Empirical Analysis of Software Defect Reports using Machine Learning and Data Mining Techniques” by building an end-to-end software to predict the severity of software defect reports using the PITS-F dataset of NASA
- Did optimizations to the Random Forest algorithm using effective pruning of decorrelated trees
- Used text mining methods like tokenization, stemming, Tf*idf, InfoGain to extract relevant features from the data

Digital McKinsey, McKinsey & Company

Jan 2016 – Feb 2016

Software Development Engineer Internship (Web Development & DevOps)

Bangalore, India

- Built a real-time retrospective application using AngularJS for the user interface and Firebase for the backend
- Developed the session management inside the chatroom for users and developed the authentication and authorization service using Auth0
- Designed the continuous integration and deployment pipeline using - CircleCI and Terraform

Vinsol

Jun 2015 – Aug 2015

Software Development Engineer Internship (Image Processing & Machine Learning)

Delhi, India

- Developed an image-based search feature to be integrated with the website of an E-commerce company in Africa
- Used hierarchical clustering to create a dendrogram to enable non-linear browsing of large data-set of images using the similarity measure of the neighboring histograms in the images
- This feature impacted more than 1 million users in various countries across the African continent

Image Processing Lab, Delhi Technological University

Jan 2015 – May 2015

Research Assistant (Image Processing)

Delhi, India

- Worked with Associate [Prof. Manoj Kumar](#) to develop a tool to enhance visibility and extract information from hazy images, which are prevalent in the northern parts of India during winters months
- Designed an adaptive associative filter after pre-processing using CLAHE (Contrast limited adaptive histogram equalization) on the converted YCbCr image

Council of Scientific and Industrial Research - National Institute of Oceanography (CSIR-NIO)

Dec 2014 – Jan 2015

Visiting Researcher (Underwater Image Processing & Marine Archeology)

Goa, India

- Worked with [Mr. Pramod Maurya](#) & [Dr. A.S. Gaur](#) to build an end-to-end tool to reduce the effect of turbidity in underwater images. This tool was integrated with the AUVs present at the research facility.
- The goal was to increase the amount of information obtained from underwater explorations
- The work was further extended to construct image mosaics from the output images for the marine archeologists to aid the study of underwater shipwrecks and sea-bed

PUBLICATIONS

- Aayush Gupta, Prateek Murgai, Pronnoy Goswami, Prithvijeet Chattopadhyay, et al., *Delhi Technological University: Design and Development of the Littoral AUV Zyra 2.0*, DTU-AUV journal paper in AUVSI foundation for Robosub 2014. [\[PDF\]](#)

TECHNICAL SKILLS

Programming Language: C, C++, Python, Java, SQL, Shell, LATEX

Software Frameworks & Libraries: ROS, OpenCV, Octave, TensorFlow, Qt, Matlab, Torch (Basic)

Web and Mobile Technologies: HTML, CSS, JavaScript, NodeJS, ReactJS

Database Systems: MySQL, PostgresQL

Version control: Git

Cloud Platforms & Services: Amazon Web Services, Microsoft Azure, Docker, Packer, Terraform, Circle CI, Jenkins, AWS IoT

ACHIEVEMENTS

- Selected as Speaker at Free & Open Source, Asia ([FossAsia](#), 2018) Conference being held at Singapore in March, 2018. Spoke on Reducing the Effect of Turbidity in Underwater Images [\[Link\]](#)
- AUVSI International Robosub – 2013, semi-finalists
- National Institute of Ocean Technology SAVe (Student Autonomous Underwater Vehicle Competition) – 2014, runner-up
- Microsoft Hackcon – 2014, finished 17th (Team: Oblivion) among 259 teams across India
- Academic Excellence Scholarship, DTU - 2012, 2015.
- 10th National Science Olympiad–2007, Gold Medalist for securing Country Rank 40 and State Rank 6 among more than 2 lakh participants
- State Bank of India Merit Scholarship – from 2012 to 2016, for excellent academic grades in undergraduate engineering course

POSITION OF RESPONSIBILITY

- President, Society of Software Engineers, DTU – from 2015 to 2016, led a team of 200 students and organized Cogenesis – the annual technical fest of Department of Computer Engineering, DTU.
- Placement & Internship Coordinator, Department of Training & Placement, DTU – for the class of 2016 - assisted and coordinated the campus recruitment process for around 150 companies like - Amazon, Google, Microsoft etc. Also, coordinated the summer and winter internship fairs at DTU

VOLUNTEER EXPERIENCE

- Event Organizer at JS Channel ([2017.jschannel.com](#)) – 2017, one of the largest JavaScript conferences in Asia. I was responsible for logistic arrangements and hospitality of the speakers at the conference.
- Placement Guidance Sessions at Department of Training & Placement, DTU - from 2015 to 2016 - organized sessions to guide my juniors and fellow classmates to ace the coding interviews conducted by various companies

INTERESTS

- **Professional:** Design Patterns, Data Structures, Algorithms, Rapid Prototyping and Development
- **Sports:** Badminton, Swimming
- **Hobbies:** Photography, playing keyboard