

# BENEDICT FLORANCE AROCKIARAJ

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[Website](#) ◇ [LinkedIn](#) ◇ [GitHub](#)

## EDUCATION

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**National Institute of Technology, Tiruchirappalli, India**  
*B.Tech (Hons.) in Computer Science and Engineering*

July 2016 - Present  
CGPA: **9.48/10**

**Montfort School, Trichy**  
Class XII *All India Senior School Certificate Examination 2016*  
Class X *All India Secondary School Examination 2014*

May 2016  
**96.8%**  
CGPA: **10/10**

## AREAS OF INTEREST

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Machine Learning, Deep Learning and Computer Vision

## SCHOLASTIC ACHIEVEMENTS

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- Recipient of the prestigious **Mitacs Globalink Research Internship Award - 2019** to work under **Prof. Dr. Éric Granger** at École de technologie supérieure, Montréal (Université du Québec)
- Recipient of the prestigious **Indian Academy of Sciences' Summer Research Fellowship - 2018** to work under **Prof. Dr. C. V. Jawahar** at International Institute of Information Technology, Hyderabad
- Currently **ranked** among the **top 5%** of the **102 students** in the CSE Department, NIT Trichy
- Awarded the **Google India Challenge Scholarship** for the Web Specialist track
- Among the 20+ **semi-finalists** from India for the **Cargill Scholars Program** for leadership development
- Secured **first place** in the district of Trichy in the CBSE Class XII **AISSCE 2016**
- Awarded the **Best Outgoing Student** of Montfort School, Trichy for the academic year 2015-16

## RESEARCH EXPERIENCE AND PROJECTS

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**Unsupervised Deep Domain Adaption for Object Detection**  
*Guide: Prof. Dr. Éric Granger*

May 2019 - Present  
*ETS, Montreal*

- Working on an unsupervised, still-image to videos domain adaptation by leveraging the temporal coherence of the videos from the target domain with the help of a tracker
- Analyzed the distribution gap and performed studies on local features to show the vulnerabilities of the existing image-to-image adaptation approaches that under-perform on face-detection datasets like SCUT-A, SCUT-B and Widerface but show remarkable results on datasets like Cityscape and SIM10k

**Highlights Generation and Player Analysis for Broadcast Cricket Videos** August 2019 - Present  
*Guide: Prof. Dr. E. Sivasankar*

*NIT, Trichy*

- Employed video frame segmentation and replay detection on a newly constructed dataset of IPL cricket videos. Working on a video classification network for events like boundaries, sixes, wickets and milestones
- Conducted a study on the real-world implementation of sports analytics by interviewing Mr. K.S. Viswanathan, CEO of Chennai Super Kings, the most successful franchise cricket team and other experts from the domain

**Indian Flora Project: Social Image Data Based Plant Species Identification and Disease Detection using Deep Learning**  
*Guide: Prof. Dr. C. V. Jawahar*

May 2018 - July 2018  
*IIIT, Hyderabad*

- Performed transfer learning on various CNN models using our new Indic-Leaf dataset of 112 Indian plants for identification and disease detection with results showing Top-1 and Top-5 precision of 90.08 and 96.90

- Deployed auto-segmenter, auto-recommender systems and a collaborative web-portal using Angular and NodeJS and an Android app where users can add new observations and query for species identification

### **MDecoder**

Feb 2018 - April 2018

*Pragyan, the techno-managerial festival of NIT Trichy*

*Spider, NIT Trichy*

- Developed the online math challenge MDecoder using ReactJS, Laravel and hosted in Docker environment
- Implemented efficient, foolproof algorithms for authentication, time-based scoring, question generation and submission validation. The contest witnessed over 500+ contestants and 25,000+ submissions.

### **Software Development Intern**

Dec 2017 - Feb 2018

*Indian Railways*

*Integral Coach Factory, Chennai*

- Built the backend for digitizing the records of inventory management and production planning for the coaches and rakes. Implemented API's in Laravel to handle authorization across Web and Android clients
- The Android app has been released on the Google Play Store and is used by 500+ employees of ICF, Chennai.

### **Smart Health Care System**

Oct 2017 - Dec 2017

*Guide: Prof. Dr. E. Sivasankar*

*Special Mention at Pragyan Hackathon, Bangalore*

- Wrote APIs for an Android app and implemented deep-learning models to predict disease risks based on symptoms and recommend a future course of action as a collaborative pipeline between doctors and patients

## **RELEVANT COURSES**

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- **Core Courses** - Discrete Structures, Data Structures, Algorithms, Combinatorics and Graph Theory, Programming Languages, Software Engineering, Computer Organization, Computer Architecture, Operating Systems, Automata and Formal Languages, Compilers, Cryptography, Database Management Systems
- **Relevant Courses** - Machine Learning, Soft Computing, Probability, Data Warehousing and Data Mining  
*Currently Pursuing* - Artificial Intelligence, Image Processing, Mathematics for Machine Learning
- **Independent Coursework** - Machine Learning (*Stanford University/Coursera*), Computer Vision (*Mubarak Shah/UCF*), Machine Learning with TensorFlow (*Coursera*), CNNs for Visual Recognition (*Stanford Online*)

## **TECHNICAL STRENGTHS**

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### **Languages, Software and Tools**

C/C++, Python, JavaScript, git, MATLAB, GNU Octave, L<sup>A</sup>T<sub>E</sub>X

### **Libraries**

TensorFlow, Pytorch, Caffe, NumPy

### **Web Development**

HTML, CSS, Angular, PHP, Laravel, Node.js, MySQL, MongoDB

## **POSITIONS OF RESPONSIBILITY AND EXTRACURRICULARS**

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- **Machine Learning Enthusiast and Web Developer**, *Spider, the Research and Development club*: Built the institute websites for mess and hostel room allocation and tech-fest contests. Involved in interdisciplinary research projects, knowledge sharing sessions, hackathons, coding contests and open-source projects
- **Instructor and Organizer**, *Technical Workshops*: Conducted introductory web and game development, machine learning workshops to the institute freshmen and students from various institutes across the state
- **Head, Workshops and Informals**, *Festember, the cultural festival of NIT Trichy*: Leading a team of 80 members to organize workshops, informal events and South India's largest student-run short film festival "Rolling Reels Film Festival" engaging a footfall of over 15000 students from 250+ institutes across India
- **Institute Student Mentor**, *Orientation Team*: Organized orientation events and lectures by eminent personalities for 900+ freshmen, mentored 10 freshmen helping them get accustomed to the institute life
- **Instructor and Volunteer**, *Illuminate*: a government-certified charitable trust that aims to provide a wholesome education in Math, English and Moral Values to children from marginalized communities
- **Volunteer**, *National Service Scheme(NSS)*: Volunteered for social service activities through plantation drives, awareness campaigns and orphanage visits for a period of two years