

# NAKUL DUREJA

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## EDUCATION

### Georgia Institute of Technology, Atlanta, GA

Bachelor of Science in Computer Engineering

- GPA: 3.91/4.00

Aug 2011 - Dec 2014

### Georgia Tech Lorraine, Metz, France

Study Abroad Program, Spring 2013

- Travelled to 29 cities across 14 countries in Europe exploring diverse cultures and European scientific community.

Jan 2013 – May 2013

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## SKILLS

- **Programming:** Java, Go, C, C++, Python, JavaScript, MATLAB, VB .NET, VHDL, ARM and MIPS Assembly Language.
  - **Tools/Frameworks:** Git, Spring, Gradle, RESTful APIs, Redis, PostgreSQL, OpenCV, LAMP, jQuery Mobile and PhoneGap.
  - **Areas of Interest:** Machine Learning, High Performance Computing, Human Computer Interaction, Embedded Systems and Computer Architecture.
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## EXPERIENCE AND RESEARCH WORK

### Software Engineer – PEAK6 Investments LP

Proprietary Trading Firm - Chicago, IL

Jan 2015 – Present

### Undergraduate Teaching Assistant – Digital Design Laboratory

School of Electrical and Computer Engineering, Georgia Institute of Technology.

Jan 2014 – Dec 2014

- Mentored undergraduate students, assisting them to perform lab activities emphasizing on hardware design, debugging and building of custom digital devices like processors and controllers.

### Full-Stack Developer Intern – Village Defense Inc.

Public Safety Startup - Atlanta Tech Village

June 2014 – Aug 2014

- Worked on developing a real-time communication platform for neighborhoods to fight crime and stay connected.
- Created a dashboard for users to access their neighborhood data visualizations, chat with neighbors and send alerts.
- Maintained server configurations including migration to Amazon AWS EC2 and facilitated iOS/Android app deployment.
- Improved alert sending speeds by more than 60% via asynchronous concurrent calls to Twilio REST API.

### Undergraduate Research Assistant – Intelligent Tutoring System (ITS)

Vertically Integrated Project under Prof. James H. McClellan, Georgia Institute of Technology.

Jan 2012 – May 2014

- Worked on the development of an education platform that simulates customized instruction feedback for students.
- Developed data mining tools and automatic content tagging mechanism to manage multitude of resources on the server.
- Ported the system to a web based mobile application.

### Software Engineering Intern – National Informatics Center (NIC)

Customs Division, Department of IT, Government of India.

May 2012 – July 2012

- Developed a Windows Application, 'Consol Manifest', a Remote Electronic Data Interchange System currently being used by Customs House Agents, Importers and Exporters to easily prepare and file customs declaration online.
  - Implemented data encryption/decryption, automatic updating, managed documentation and provided user-support.
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## PROJECTS

### Autonomous Flight Controls Using Optical Tracking

- Implemented optical tracking system and control mechanism to enable a quadcopter to follow a marked target.

### ConnectTied Wearable Augmented Reality Device

- Prototyped a wearable spatial augmented reality device that projects digital information on user's physical world using a pico projector, controlled by human gestures, objects and environment observed using Microsoft Kinect.
- Implemented gesture recognition using *Hidden Markov Models* to provide input to interface running on Intel Atom.

### Digital Design Laboratory – Robot Self-Test

- Designed battery usage prediction tests for the Altera DE2 FPGA based robot using I<sup>2</sup>C bus controller.
- Integrated it as a part of initial self-test for the robot to help the user to detect and solve hardware issues.

### Chess Engine AI

- Developed a Chess Engine incorporating Artificial Intelligence, GUI, and customizable player style/move rankings.
- Implemented min-max algorithm with alpha-beta pruning, performing 3-5 ply analysis in limited time.

### Student Government Association - Course Critique

- Helped redevelop SGA Course Critique, a website consisting of course data (professors, GPA breakdown) from past semesters, helping students choose their coursework resourcefully.