# Kushagra Gupta

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## Experience

**KPMG LLP**, Technology Advisory Intern *Chicago, Illinois, 2018*

Incoming member of the Technology Enablement team, $AI^2$ division (Automation, Integration, Information)

**Misty Robotics, Formerly Part of Sphero**, Electrical and Computer Engineering Intern *Boulder, Colorado, 2017*

Built, tested, and programmed embedded boards containing Altera FPGAs and Atmel microcontrollers

Designed hardware systems including the display format conversion subsystem using an I2C configurable DSI to RGB bridge chip

Transferred motor control system to the new driving platform and debugged performance issues

**ParkWhiz LLC**, Software Development Intern *Chicago, Illinois, 2015-16*

Implemented a back-end analytics platform to monitor customer actions on the ParkWhiz site and mobile applications

Utilized Go, Ruby, SQL, and Docker to write and deploy the service to ParkWhiz servers

Determined ways to use this data to make informed business and marketing decisions

**Harvard University's Whitesides Research Laboratory**, Student Researcher *Cambridge, Massachusetts, 2015*

Developed prototypes for pneumatically-actuated walking robots built entirely out of "soft" components

Designed and assembled an Arduino-based platform on which to automate robot actions

Conducted research regarding the applications of electromagnetically-induced oscillation in robotics

## Education

**University of Illinois at Urbana-Champaign**, BS. Electrical Engineering, Junior, GPA: 3.95/4.0 *Champaign, Illinois, 2016-2020*

Chancellor's Scholar, Engineering James Scholar, and recipient of the Provost Scholarship

Current Classes: ECE391: Computer Systems Eng. CS425: Distributed Systems ECE313: Probability with Eng. Applications

Selected Past Classes: CS225: Data Structures ECE486: Control Systems CS431: Embedded Systems

**Illinois Mathematics and Science Academy**, GPA: 4.0/4.0 *Aurora, Illinois, 2013-16*

## Projects

**Operating System Migration Compatibility Testing** *Champaign, Illinois, 2017*

Solved compatibility issues in statistics software ahead of a planned OS migration for a Fortune 500 pharmaceutical company

Developed technical resources and tools (Perl) to streamline the statistics manipulation process on Linux and Windows

**Stabilized Reaction Wheel Pendulum** *Champaign, Illinois, 2017*

Derived mathematical equations describing the RWP and suitable controller+observer models to stabilize the system

Implemented the controller on a physical RWP, achieving stability at the inverted equilibrium and swing-up control for the pendulum

**Applications of Electromagnetically-Induced Oscillation in Robotics** *Whitesides Research Laboratory, 2015*

Invented a method to harness the vibrations of an oscillating magnet in order to achieve locomotion

Created and implemented an algorithm to track a magnet's position in 3D space within an arrangement of electromagnetic coils

## Extra-Curricular Involvement

**Office for Technical Consulting Resources**, Consultant *University of Illinois at Urbana-Champaign, 2016-18*

Developed business strategy and technical solutions for companies ranging from local start-ups to Fortune 500 corporations

**ECE Pulse**, Marketing and Design Director *University of Illinois at Urbana-Champaign, 2017-18*

Built Pulse brand and coordinated design and advertising across all platforms for week-long event hosting over a thousand students

**Indian Student Association**, Creative Design Chair *University of Illinois at Urbana-Champaign, 2016-17*

Organized events to promote Indian culture and built a brand with a social media presence of more than 3,000 followers

## Skills

**Languages and Frameworks** | Java, C, C++, Javascript, HTML, CSS, Arduino, Python, MATLAB, Assembly Programming (x86, LC3)

**Technical Software** | Git, SVN, Eclipse, Atom, Verilog, Quartus, Altium, LaTeX

**General Software** | Microsoft Office, Adobe Photoshop/Illustrator/Lightroom/Premiere, Inkscape

## Interests

Cooking | Graphic Design | Photography | Music