

# Jishnu Dey

jishnu-d.github.io

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## EDUCATION

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- **University of Illinois at Urbana-Champaign** Urbana, IL  
*Master of Science in Computer Science; GPA: N.A.; Adviser: Prof. ChengXiang Zhai* Aug. 2018 – Present
- **Indian Institute of Technology Kharagpur** Kharagpur, India  
*Bachelor of Technology in Electronics and Electrical Communication Engineering; GPA: 9.36/10* July. 2012 – May 2016

## EXPERIENCE

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- **Samsung R&D Institute India** Bangalore, India  
*Senior Software Engineer* Mar. 2018 - Jul. 2018  
*Software Engineer* Jun. 2016 - Feb. 2018
  - **Lead contributor to InstaBP - A smartphone app for blood pressure measurement**
    - \* Prototyped data processing, feature engineering and machine learning models in Python. Worked on public as well as in-house photoplethysmography data. Implemented Java backend code for the Android app published on Google Play Store.
    - \* Results were published in a conference paper for IEEE EMBC 2018.
    - \* *InstaBP* was declared a winner in NASSCOM's AI Game Changer Awards 2018.
  - **Alertness Indicator:** Developed an alertness estimation model in Python from heart beat data using feature engineering and machine learning. Published 2 conference papers in IEEE EMBC 2017. Developed the C++ backend for Samsung Gear's Tizen OS platform.
  - **Indian Foods Database:** Helped the creation of a database (~10K) of Indian foods and nutrition information through web scraping in Python. Developed frameworks for food type classification using CNNs.

## PUBLICATIONS

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- **Jishnu Dey, Aman Gaurav, V. N. Tiwari.** "InstaBP: Cuff Less Blood Pressure Monitoring on Smartphone Using Single PPG Sensor." 2018 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC). Year: 2018. [Paper accepted, pending publication]
- **Jishnu Dey, Tanmoy Bhowmik, Saswata Sahoo, V. N. Tiwari.** "Wearable PPG sensor based alertness scoring system." 2017 39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC). Year: 2017. Pages: 2422 - 2425. [Link]
- **Tanmoy Bhowmik, Jishnu Dey, V. N. Tiwari.** "A novel method for accurate estimation of HRV from smartwatch PPG signals." 2017 39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC). Year: 2017. Pages: 109 - 112. [Link]

## PROJECTS & INTERNSHIPS

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- **Heart Rate Estimation from Wrist PPG.** *Internship at Samsung R&D Institute India. May 2015 - Jul. 2015*  
Reduced noise in wrist based PPG signals using adaptive filtering and achieved ~90% accuracy on IEEE Signal Processing Cup 2015 dataset, comprising of extremely noisy signals. Prototyped on MATLAB, and implemented the backend code in C++. Awarded a full-time job offer.

- **Distributed Deployment of Wireless Sensor Networks.** *Bachelors Thesis. Aug. 2015 - May 2016*  
Formulated the problem of area coverage by P2P sensor nodes into a game theoretic interaction between self interested agents. Solved a distributed optimization problem to achieve maximum coverage. Simulations were performed in MATLAB.
- **Modeling and Simulation of Nanopropeller interaction.** *Internship at IISc Bangalore. May 2014 - Jul. 2014*  
Modeled the mutual interaction of two nanopropellers and performed a MATLAB simulation. Verified physical experiments through the simulation results.

## PROGRAMMING SKILLS

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- **Proficient:** Python ◦ C ◦ C++ ◦ MATLAB
- **Comfortable:** Java ◦ Android ◦ R ◦  $\text{\LaTeX}$  ◦ Git
- **Familiar:** SQL ◦ HTML ◦ CSS

## COURSEWORK

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Deep Learning\* ◦ Advanced Information Retrieval\* ◦ Machine Learning ◦ Algorithms ◦ Probability and Statistics ◦ Advanced Operating Systems Design ◦ Digital Signal Processing ◦ Image Processing  
◦ Computer Networks ◦ Information Theory ◦ Financial Markets

\*Graduate, Ongoing

## ACHIEVEMENTS & TEST SCORES

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- **Samsung Citizen Award:** Technology Excellence - Innovator category *Aug. 2017*
- **GRE:** 334 [Verbal - 164, Quant - 170] *Jul. 2017*
- **CAT (organized by IIMs):** 99.99 %ile among 0.2 million candidates *2017*
- **Technology General Championship, IIT Kharagpur:** Gold Medalist in Math Olympiad *2013*
- **IIT-JEE:** All India Rank 534 among 0.5 million candidates *2012*

## POSITIONS OF RESPONSIBILITY

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- **Teaching Assistant for CS125 at UIUC:** Leading two lab sections and holding office hours for doubt clearance and assignment help. *Aug 2018 - Present*
- **Mentored two interns at Samsung R&D India.** Helped with project understanding, supervised their progress and provided feedback. *May 2017 - Jul. 2017*