Prasanta Kr Sen

Contact Information

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Profile summary

Experienced Project Engineer with a demonstrated history of working in the higher education industry. Skilled in C, C++, Java, Matlab, Python, JSP, PHP, Android Programming, Embedded System, Biomedical Signal and Image Processing, Internet of Things, Machine Learning, MySQL, Unity3D and SCAD. Strong operations professional with a Master of Science (MS) focused in Medical Electronics from the Indian Institute of Technology, Kharagpur.

Education

Indian Institute of Technology, Kharagpur, West Bengal, India.

- **MS by Research** (Pursuing) from the **Centre for Educational Technology**
- **Supervisor:** Dr. Shyamal Kumar Das Mandal
- **Title of The Thesis:** Design and Development of a Non-invasive Blood Glucose Screening System based on Visible-NIR Spectrum.
- **Area of Study:** Medical IoT
- CGPA (Partial): 7.90/10

West Bengal University of Technology, Kolkata, West Bengal, India.

- Bachelor of Technology (B.Tech) in **Electronics and Communication Engineering** , Year of Passing-2010
- CGPA: 7.94/10

West Bengal Council of Higher Secondary Education, Kolkata, West Bengal, India.

- Higher Secondary (+12) (Science) , Year of Passing-2006
- Percentage: 83.50

West Bengal Board of Secondary Education, Kolkata, West Bengal, India.

- Madhyamik (+10) , Year of Passing-2004
- Percentage: 81.25

Skill Sets

Computer Skills

- **Programming Languages:** C, C++, Java, Python, MATLAB, Unix shell scripts, Programming in Embedded System
- **Web Technologies:** JSP, JavaScript, PHP, HTML, AJAX, JSON
- **Databases:** MySQL, SQL
- **Machine Learning Libraries:** OpenCV, Scikit-learn, PyTorch, Tensorflow
- **Tools:** MATLAB simulink, Unity 3D
- **Operating Systems:** Unix/Linux, Windows, Android
- **Hardware Platform:** Arduino, Raspberry Pi

Work Experience

Working as a **Software Developer** at National Digital Library of India at IIT Kharagpur (March 2019 – Present)

- **Project title:** Development of National Digital Library of India as a Digital Knowledge Asset of the Nation.
- **Responsibility:** i) Extract metadata by crawling various online sites for data acquisition.
  ii) Development a user-friendly interface and utilities for analysis of the original (or source) metadata fields.
  iii) Map source metadata fields to NDLI schema(s) and export the data to the specified format.
- **Technology Used:** Java, PHP, Servlet, MySQL, Curl, Shell Script, JavaScript.

Worked as a **Project Engineer** at Centre for Educational Technology Department, IIT Kharagpur (June 2015 – Sep 2018)

- **Project title:** Developing suitable pedagogical methods for various classes, intellectual calibers, and research in e-learning.
- **Responsibility:** Design and development a sophisticated software tool to monitor and manage Outcome-based learning curriculum documents.
- **Technology Used:** Java, Servlet, MySQL, JSP, JQuery, Ajax, HTML, CSS, JavaScript, JSON.

Worked as a **Project Assistant (PA)** at Centre for Educational Technology Department, IIT Kharagpur (Dec 2012 – June 2015)

- **Project title:** Pronunciation Lexicon Specification (PLS) for Indian Languages.
- **Responsibility:** Developed a Web Tool for Creation of Pronunciation Lexicon in Indian Languages (PL-ILT).
- **Technology Used:** Java, Servlet, MySQL, JSP, JQuery, Ajax, HTML, CSS, JavaScript.

Worked as a **Trainee Engineer (Electronics)** at GIMAtex Ind. Pvt. Ltd, Wani, Nagpur, India (Dec 2010 – January 2012)

- **Responsibility:** Worked in reactive and preventive maintenance of electrical and electronic machines.

Research Interests

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- Medical Internet of Things
- Biomedical Signal and Image Processing
- Human-Computer Interaction

Research Work

At **Centre for Educational Technology, IIT Kharagpur** (Dec 2014 – Present)

- Design and Develop a Non-invasive Blood Glucose Screening System based on Visible-NIR Spectrum. It is a low-cost, portable, power-efficient, wirelessly connected device which also connected to an android application for storing and send the digitized information into the cloud server.

- Developed an embedded software application, especially for health-conscious people concerned with air pollution. It helps to search for an optimal path based on the concentration of pollutants in the air from available alternatives.

- Design and development PressTact that extends interaction space beyond the smartwatch surface to the sides of the device. It enables users to different input levels of pressure that can used for bi-directional navigation.

- Design and development a Hall effect sensors based text entry mechanism that effectively uses the 3D space around the smartwatch for entering alphanumeric characters.

Publications

Patents

(p1) **Prasanta Kr Sen**, Shyamal Kumar Das Mandal, Mostafizur Rahaman Laskar, Sudipta Ghosh, Biswarup Neogi, "**Design and Development of Screening Apparatus for Non-invasive Blood Glucose Estimation and Feature extraction from Joint Visible-Infrared Spectrum**" Indian Patent, Application no. 201931047605, 21st November, 2019.

Journal Proceedings

(j1) Rajkumar Darbar, **Prasanta Kr Sen**, Punyashlok Dash, and Debasis Samanta. "**Using hall effect sensors for 3D space text entry on smartwatches.**" Procedia computer science 84 (2016): 79-85. **(pdf)**

Conference Proceedings

(c1) **Prasanta Kr Sen** , Shyamal Kumar Das Mandal and Mostafizur Rahaman Laskar "**Design and Implementation of a Biosensing Microsystem for Non-Invasive Estimation of NIR-Visible Spectrum**" In 2019 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC) (Poster).

(c2) **Prasanta Kr Sen**, Mostafizur Rahaman Laskar, and Shyamal Kumar Das Mandal. "**Non-invasive Estimation of Blood Glucose Level in Visible-NIR Spectrum: System and Software Design.**" In 2019 International Conference on Wireless Communications Signal Processing and Networking (WiSPNET), pp. 416-420. IEEE, 2019.**(pdf)**

(c3) Rajkumar Darbar, **Prasanta Kr Sen**, and Debasis Samanta. "**PressTact: Side pressure-based input for smartwatch interaction.**" In Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems, pp. 2431-2438. ACM, 2016. **(pdf)**

(c4) Mostafizur Rahaman Laskar, **Prasanta Kr Sen**, and Shyamal Kumar Das Mandal. "**An IoT-Based e-Health System Integrated With Wireless Sensor Network and Air Pollution Index.**" In 2019 Second International Conference on Advanced Computational and Communication Paradigms (ICACCP), pp. 1-5. IEEE, 2019. **(pdf)**

(c5) Mostafizur Rahaman Laskar, **Prasanta Kr Sen**, Ishita Paul, Saptargha Das, and Sudipta Ghosh. "**Principal Feature Extraction from Regional Speech in Emergency Communication.**" In 2019 Second International Conference on Advanced Computational and Communication Paradigms (ICACCP), pp. 1-5. IEEE, 2019. **(pdf)**

Achievements

- Qualified **Graduate Aptitude Test in Engineering (GATE)** conducted by IITs (March 2019) [Score: 31.33/100 (qualifying mark 25.00)]
- **Merit-cum-Means Scholarship**, Government of West Bengal (July 2006–June 2010)
- **Student Travel Grant** from Second International Conference on Advanced Computational and Communication Paradigms (ICACCP-2019).

Extra Curricular

- **Student Volunteer** in 2019 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (**IEEE EMBC**)
- **IEEE Graduate Student Member** since January 2019. Membership Number is 95145616.