Swadhin Pradhan

MACHINE LEARNING ENGINEER & DATA SCIENTIST

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Education

The University of Texas at Austin   *Austin, Texas, USA*

PH.D. IN COMPUTER SCIENCE   *2014 - 2020*

- Thesis: Battery-free Wireless Sensing and Beyond
- Advisor: Lili Qiu
- CGPA: 3.92/4.0

Indian Institute of Technology Kharagpur   *Kharagpur, WB, India*

M.S. (BY RESEARCH) IN COMPUTER SCIENCE AND ENGINEERING   *2012 - 2014*

- Thesis: Improving Localization and Energy Efficiency of Smartphone Applications
- Advisor: Niloy Ganguly
- CGPA: 9.66/10.0

Jadavpur University   *Kolkata, WB, India*

B.E.(HONORS) IN INFORMATION TECHNOLOGY   *2007 - 2011*

- University Gold Medal
- CGPA: 9.45/10.0

Experience

DEVELOPMENT

Data Science Infrastructure Group, Cisco Meraki   *Austin, TX, USA*

SOFTWARE ENGINEER   *October 2020 - Present*

- Building RAG + LLM-based chat-bot aka *Cisco AI Assistant* which calls internal APIs and search through internal documents
- Instrumental in developing Networks Like You feature at Meraki Dashboard which helps customers to better plan configurations
- Contributed to better indoor wireless localization and online change-point detection system *uEval* at Meraki
- Enabling data intelligence and platforms for developing a more informed strategy

Interra Systems India Pvt. Ltd.   *Kolkata, WB, India*

SOFTWARE ENGINEER   *May 2011 - Jan. 2012*

- Successfully built an XML parser for a data format converter named OVC
- Built a front-end and command parser of a Graphical User Interface (GUI) viewer tool named Mirus3G

Interra Systems India Pvt. Ltd.   *Kolkata, WB, India*

SOFTWARE ENGINEERING INTERN   *June 2009 - Aug. 2009*

- Developed a SWIG interface for Python for a suite of C++ IP Libraries
- Developed a C++ template library to support easier management of products

RESEARCH

NEC Labs America, Mobile Communications + Networking Group   *Princeton, NJ, USA*

RESEARCH INTERN   *May 2017 - Oct. 2017*

- Built a prototype of mobile voice assistant for future smart homes
- Two internal patents are filed based on the work

NEC Labs America, Mobile Communications + Networking Group   *Princeton, NJ, USA*

RESEARCH INTERN   *May 2016 - Oct. 2016*

- Built a prototype of RFID based seamless retail checkout system
- Built a RFID based battery-free touch interface
- Presented finding in ACM MobiCom 2017 and a workshop and filed a patent

Hewlett-Packard Enterprise Labs, Mobility & Networking Group   *Palo Alto, CA, USA*

RESEARCH INTERN   *May 2015 - Aug. 2015*

- Built a mobile application to assess notification importance based on user engagement level
- Presented findings in IEEE InfoCom 2017 and filed a patent

Publications

Honors & Awards

2019	**Recipient,** UT Austin Graduate Continuing Fellowship	*Austin, Tx, USA*
2018	**Student Travel Grant Recipient,** ACM MobiCom 2018	*New Delhi, India*
2018	**Student Travel Grant Recipient,** SIGCHI (for attending ACM UbiComp 2018)	*Singapore*
2017	**Student Travel Grant Recipient,** IEEE INFOCOM 2017	*Georgia, USA*
2011	**University Gold Medal Recipient,** For ranking 1st in class of B.E. (IT) in Jadavpur University	*WB, India*
2007	**Ranked within top 0.5% (approx. 100,000 aspirants),** State engineering entrance examination	*WB, India*
2005	**Gold Medal Recipient,** District Topper in Secondary Examination and ranked 39 in the state	*WB, India*

Patents

1. Battery-free touch-aware user input using RFID tags
US Patent: 10,346,655

E. CHAI, **SWADHIN PRADHAN**, S. RANGARAJAN, M. KHOJASTEPOUR, AND K. SUNDARESAN *July 2019*

- Patent is filed with NEC Labs America
- Proposes a design of battery-free touch interface using RFID tags

2. Mobile Device Notification Scheduling
WIPO Patent: WO/2017/131748

SWADHIN PRADHAN, A. PARATE, K.H. KIM, AND J. COOK *Aug. 2017*

- Patent is filed with HPE Labs
- Proposes a system which schedules notifications in mobile devices intelligently

Technical Skills

Programming Languages	Python, C, Java, C++, SQL
Software Engineering Knowledge	ETL, Data Visualization, REST APIs, CI/CD, MLOps and DevOps
Cloud Technologies	Snowflake, AWS S3 / Lambda / Glue / Redshift, Kubeflow, Terraform
Tools used	OpenCL, MATLAB, NS3, Scikit-learn, Doxygen, SWIG, Pajek, NS2, FFMpeg, Flex, Bison
Deep Learning Frameworks	TensorFlow, PyTorch, Keras
Hardwares used	Embedded Platforms (Arduino, Raspberry Pi, HummingBoard Pro, BeagleBone), Ettus USRP
Others	Android Programming, GTK Programming, Socket Programming

Interesting Projects

Capturing ECG using wrist-worn IMUs
UT Austin, USA

GRADUATE RESEARCH PROJECT *March 2016 - May 2016*

- Attempted to measure ECG exploiting the vibrations of IMUs embedded in wrist-worn wearables

Predicting Sarcasm in Tweets
UT Austin, USA

GRADUATE COURSE PROJECT *March 2015 - May 2015*

- Attempted to measure the level of sarcasm present in tweets

Automatic Facial Expression Detection using EEG headset
UT Austin, USA

GRADUATE COURSE PROJECT *Oct. 2014 - Dec. 2014*

- Designed a system to detect the facial expression using the MUSE EEG headset

A Browser plug-in for Search Trail Suggestion
IIT Kharagpur, India

YAHOO HACK U *June 2013*

- Designed a prototype which provided users with different series of search trail suggestions

Analysing the impact of group performance in Test Cricket
IIT Kharagpur, India

GRADUATE COURSE PROJECT *Feb. 2013 - April 2013*

- Designed a novel metric to measure the impact of performance from the cricinfo data of test matches

Setting up Low Cost GSM Network
Jadavpur University, India

UNDERGRADUATE THESIS PROJECT *July 2010 - March 2011*

- Designed and implemented a prototype of multi-hop delay-tolerant cellular network in a Java based simulation

C to Assembly Translator
Jadavpur University, India

UNDERGRADUATE COURSE PROJECT *May 2010 - July 2010*

- Designed and implemented a whole pipeline of compiler and assembler for a subset of C language