Jees **Augustine**

. ALGORITHM . DATABASE . DATA SCIENCE . DEEP LEARNING . GRAPHS . MACHINE LEARNING .
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EDUCATION

Ph.D. Computer Science and Engineering — Arlington, Texas
University of Texas at Arlington, USA — Fall 2014 - Fall 2020
(CGPA: 4.0/4.0)

Master in Engineering . Computer Science and Engineering — Pilani, India
Birla Institute of Technology & Science, Pilani, India — Fall 2011- Fall 2013 **(CGPA: 8.19/10.0)**

PROFESSIONAL EXPERIENCE

Cisco Systems - India — Bangalore, India
SOFTWARE ENGIEER II — Aug-2013 – Aug-2014

- Implementation and refinement of features in **Multi-Protocol Label Switching (MPLS)** and **Fast Rerouting (FRR)** on mobile backhaul networks.

EMC Corporation — Bangalore, India
PROJECT INTERN — Jan-2013 – Jun-2013

- Design and development of an application, choreographing the Backup Server Install/Upgrades in **Python**.
- Devising a **pseudorandom number generator** for verifying the client-side deduplication.

Indian Institute of Technology - Chennai — Chennai, India
PROJECT INTERN — May-2012 – Jul-2012

- **Online Minimum Makespan Scheduling** with improved Buffer Size.

Vikram Sarabhai Space Center (VSSC) — Trivandrum, Kerala
PROJECT INTERN — Nov-2009 – Jan-2009

- **Design of information warehousing** system for launch vehicle simulations using **JSP** and **MySQL**.

AWARDS AND RECOGNITION

- **Invitation by the Research Highlights Board to the Communications of ACM as Research Highlights 2020** for the best research in 2019 for our work "**Efficient Signal Reconstruction for a Broad Range of Applications"** (Published at SIGMOD Records).
- **Cyneta Networks Outstanding Teaching Assistant Award – Graduate** (2019)
- **Kelcy Warren Graduate Fellowship for Engineering** (2019)
- **pVLDB Best Reproducibility Research Award 2018** for "**Leveraging Similarity Joins for Signal Reconstruction**" *(work will be featured in VLDB 2019).* -Link-
- **Invitation to Special Edition of VLDB Journal 2019** for best research in 2018 for **"Efficient Signal Reconstruction for a Broad Range of Applications" [honor given to less than 1% of the accepted papers].** - Link to the work -, - Link to editor's report of our work - .
- **VLDB - 2018 Travel Award**
- **Computer Science and Engineering STEM Doctoral Fellowship** [Fall 2014 – Fall 2020]

PUBLICATIONS

- [SIGMOD 2021] **Jees Augustine**, Suraj Shetiya, Mohammadreza Esfandiari, Senjuti Basu Roy, Gautam Das. **"A Generalized Approach for Reducing Expensive Distance Calls for A Broad Class of Proximity Problems"**.
- [VLDB 2020] **Jees Augustine**, Suraj Shetiya, Abolfazl Asudeh, Saravanan Thirumuruganathan, Azade Nazi, Nan Zhang, Gautam Das, Divesh Srivastava. **"Orca-SR: A System for Traffic Engineering based on Scalable Signal Reconstruction"**.
- [SIGMOD 2020] Shohedul Hasan, Saravanan Thirumuruganathan, **Jees Augustine**, Nick Koudas, Gautam Das. **"Deep Learning Models for Selectivity Estimation of Multi-Attribute Queries"**.
- [Journal] Abolfazl Asudeh, **Jees Augustine**, Azade Nazi, Saravanan Thirumuruganathan, Nan Zhang, Gautam Das, Divesh Srivastava. **"Scalable Algorithms for Signal Reconstruction by Leveraging Similarity Join"**, Special Issue of VLDB Journal 2019 on the best from VLDB 2018.
- [Poster] Abolfazl Asudeh, **Jees Augustine**, Azade Nazi, Saravanan Thirumuruganathan, Sona Hasani, Nan Zhang, Gautam Das, Divesh Srivastava. "**Database Techniques for Network Traffic Analysis**", In *iPerform 2018*.

- [Conference] Abolfazl Asudeh, Azade Nazi, **Jees Augustine**, Saravanan Thirumuruganathan, Nan Zhang, Gautam Das, Divesh Srivastava. "**Leveraging Similarity Joins for Signal Reconstruction**". ***VLDB**: Very Large Databases **2018**.*
- [Poster] Abolfazl Asudeh, Azade Nazi, Saravanan Thirumuruganathan, **Jees Augustine**, Sona Hasani, Nan Zhang, Gautam Das, Divesh Srivastava. "**Finding the Closest Point to a Prior in Large-Scale Sparse Binary Under-Determined Systems**", In *iPerform 2017*.
- [Poster] Azade Nazi, **Jees Augustine**, Saravanan Thirumuruganathan, Gautam Das, Divesh Srivastava, Nan Zhang. "**Finding Top-k Source-Destination Flows in a Network**". In *iPerform 2016*.

RESEARCH GRANTS

- **AT&T Research Grant, DBXLab** University of Texas at Arlington — Spring 2017
- **Qatar Research Foundation Grant, DBXLab** University of Texas at Arlington — Spring 2018

TALKS

- **Database Techniques for Network Traffic Analysis**, *iPerform 2018, University of Texas at Dallas.*
- **Finding the Closest Point to a Prior in Large-Scale Sparse Binary Under-Determined Systems**, *iPerform 2017, University of Texas at Arlington.*

WORKING PROJECTS

- A holistic approach to Federated Learning (Plan to Submit to NeurIPS – previously NIPS - 2021)

SKILLS

Data Analysis	**Pandas, NumPy, SciPy**
Machine Learning	**SciKit-Learn**
Deep Learning	**Keras, TensorFlow**
Visualization	**Matplotlib, Tableau(beginner)**
Languages	**Python, C, Java, HTML, JSP**
Databases	**MS Access, MS SQL Server, MySQL, Oracle**
Web Technologies	**HTML, XML, CSS, JavaScript**
Query Languages	**SQL, PLSQL**

RELVANT COURSES

Advanced Computational Models and Algorithms . Special Topics in Advanced Information Security **. Machine Learning . Advanced Algorithms and Complexity .** Advanced Computer Networks **.** Advanced Operating Systems **. Algorithm Analysis and Design .** Security in Computing **. Data Analysis and Modeling . Reasoning with Uncertainty .**

CERTFIED COURSES ONLINE - MOOC

- Coursera **Introduction to Data Science in Python** -Link-
- Coursera **Programming for Everybody, Getting Started with Python** -Link-
- Coursera **Python Data Structures** -Link-
- Coursera **Using Python to Access the Web Data** -Link-
- Coursera **Using Databases with Python** -Link-

ONGOING COURSES ONLINE - MOOC

- Coursera **Deeplearning.Ai**
- Coursera **Machine Learning**
- Coursera **Neural Networks for Machine Learning**
- Udacity **Deep Learning from Google**
- edx **Machine Learning for Data Science**

PROJECTS

1. **Face Recognition using Support Vector Machines (SVM)** — UTA, Sep 2014 – Dec 2014
   Technology Python2.7, NumPy, SciPy
   Dataset AT&T Image Dataset (40 different individuals)
   Methodology **Principal Component Analysis** for dimensionality reduction, **SVM** for classification
   Accuracy 88% in Testing

2. **Image Recognition using Linear Discriminant Analysis (LDA)** — UTA, Sep 2014 – Dec 2014
   Technology Python2.7, NumPy, SciPy
   Dataset AT&T Image Dataset (40 different individuals)
   Methodology **Principal Component Analysis** for dimensionality reduction, LDA for classification

Accuracy 94% in Testing

3. **Choreography of Backup Server Install/Upgrade** EMC-Corporation, Bangalore: Jan 2013 – Jun 2013
   Technology Python2.7, Linux, EMC Avamar, MySQL
   Dataset Proprietary, EMC corporation
   Methodology **Choreograph the Software Upgrade**, Generate **Pseudo Number** from Linux to test, Validation and Sanity Check
   Deployment for Internal Use at EM Corporation

4. **Live Migration of Virtual Machine over a Network** BITS, Pilani, Aug 2012 – Dec 2012
   Technology Java, Linux, MySQL, KVM
   Dataset Synthetic Dataset Generated
   Methodology Premature Negotiation, Push-Pull Negotiation with source and destination
   Deployment Experiential

5. **Middleware framework on the cloud enabling Semantic Dynamic Composition** BITS, Pilani, Jan 2012 – Dec 2012
   Technology Java, Linux, MySQL
   Dataset Synthetic Dataset Generated
   Methodology Sematic module identification with Natural Language, compose brand-new cloud services based on requirement
   Deployment Experiential

6. **Distributed System Simulator** BITS, Pilani , Sep 2011 – Dec 2011
   Technology Java, Linux
   Dataset Synthetic Dataset Generated
   Methodology **Deadlock Detection**, **Deadlock Prevention**, Process Synchronization, **IPC**
   Deployment Experiential

7. **Design of Information Repository System for Launch Vehicle** VSSC, ISRO, India Dec 2010 - Jan 2011
   Technology JSP, MySQL, Apache Server
   Dataset Proprietary flight data ISRO
   Methodology **Deadlock Detection**, **Deadlock Prevention**, Process Synchronization, **IPC**
   Deployment for Internal Use at VSSC, ISRO

TEACHING and MENTORSHIP

- **STEM Scholarship** for Graduate Teaching Assistant at long semesters at UTA. Fall 2014 – Current
- Graduate Teaching Assistant, **Secure Programming**, UTA. Fall 2017
- Graduate Teaching Assistant, **Advanced Topics in Database Systems**, UTA. Summer 2016
- Graduate Teaching Assistant, **Computer Networks**, UTA. Fall 2016, Spring 2016
- Graduate Teaching Assistant, **Computer Networks I: Protocols and Architecture**, UTA. Fall 2014 – spring 2015
- Teaching Assistant, **Data Structure and Algorithms**, Birla Institute of Technology and Science, India. Fall 2012
- Teaching Assistant, **Computer Networks**, Birla Institute of Technology and Science, India. Fall 2011 – Spring 2012

ACADEMIC ACHIEVEMENTS

- **1 among the 18 qualified** for BITSAT- Higher Degree Program (Computer Science), an **All India entrance examination** for admission into Master Degree by Birla Institute of Technology and Science, Pilani (BITS-Pilani), India.
- Secured **98.88 Percentile** in Graduate Aptitude Test in Engineering (**GATE**) in 2011 (**Written by .13M Students**).
- Project Forum Member (Masters) Computer Science Association BITS – Pilani.
- Secured **1st position** for presenting the paper "Self-Defending Networks-A Smarter Way to Defend" at **XTRIUM 09 v.20**, Technical Festival by Association of Electronics and Communication Engineering, MACE, Kothamangalam.
- Secured **2nd position** for presenting the paper "Self-Defending Networks with Automatic Intrusion Detection" at **Qbit'09 v.20,** Technical Festival organized by Department of Computer Science and Engineering, MACE, Kothamangalam.