

# Jees Augustine

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

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## EDUCATION

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### Ph.D. Computer Science and Engineering

University of Texas at Arlington, USA

(CGPA: 4.0/4.0)

Arlington, Texas

Fall 2014 - Fall 2020

### Master's in engineering. Computer Science and Engineering

Birla Institute of Technology & Science, Pilani, India

(CGPA: 8.19/10.0)

Pilani, India

Fall 2011- Fall 2013

## PROFESSIONAL EXPERIENCE

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### Cisco Systems - India

SOFTWARE ENGINEER II

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

Bangalore, India

Aug-2013 – Aug-2014

### EMC Corporation

PROJECT INTERN

- 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.

Bangalore, India

Jan-2013 – Jun-2013

### Indian Institute of Technology - Chennai

PROJECT INTERN

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

Chennai, India

May-2012 – Jul-2012

### Vikram Sarabhai Space Center (VSSC)

PROJECT INTERN

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

Trivandrum, Kerala

Nov-2009 – Jan-2009

## AWARDS AND RECOGNITION

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- 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

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- [SIGMOD 2021 Research] **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**”.
- [Invited Communications of the ACM Research Highlights, 2020] Abolfazl Asudeh, **Jees Augustine**, Saravanan Thirumuruganathan, Azade Nazi, Nan Zhang, Gautam Das, and Divesh Srivastava: “**Scalable Signal Reconstruction for a Broad Range of Applications**”.
- [VLDB 2020 Demo] **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 Research] Shohedul Hasan, Saravanan Thirumuruganathan, **Jees Augustine**, Nick Koudas, Gautam Das. “**Deep Learning Models for Selectivity Estimation of Multi-Attribute Queries**”.
- [VLDB] 2019] 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.

- [iPerform 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*.
- [VLDB 2018 Research] 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*.
- [iPerform 2017 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*.
- [iPerform 2016 Poster] Azade Nazi, **Jees Augustine**, Saravanan Thirumuruganathan, Gautam Das, Divesh Srivastava, Nan Zhang. “*Finding Top-k Source-Destination Flows in a Network*”.

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## 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

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## 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*.

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## WORKING PROJECTS

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

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## 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

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## 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 .

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## CERTIFIED 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-

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## 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

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## 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

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- **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

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- **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 **1<sup>st</sup> 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 **2<sup>nd</sup> 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.