Azeem Javed Khan

CONTACT INFORMATION

Azeem Technologies Pvt. Ltd.
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CITIZENSHIP

India

RESEARCH INTERESTS

Computer networks, mobile computing, computer architecture analysis and design, algorithms, engineering education

EDUCATION

Indian Institute of Technology Bombay, Mumbai, India

Ph.D., Computer Science and Engineering (2011)

- Thesis: *A Distributed Open Software Router: Analysis and Architectures*
- Advisors: Prof. D. Manjunath and Prof. Anirudha Sahoo
- Area of Study: Distributed computing in routers built on open source software and open hardware.

Columbia University, New York, USA

M.S., Electrical Engineering, May 2000

V.J.T.I., University of Mumbai, Mumbai, India

B.E., Electronics Engineering, Jun 1998

PROFESSIONAL EXPERIENCE

SenzIQ Pte. Ltd., Singapore

Chief Executive Officer **Jan 2020 to Mar 2021**

- Strategy: Worked with my team to identify markets, potential customers, sources of revenue and partners to take our product to market. Successfully onboarded two customers and were in advanced talks with two others before COVID-19 restrictions came into force. Worked to establish the base culture.
- Sales: Worked with my colleagues to approach and convince potential customers to work with us. Applied for and successfully shortlisted for grants and paid trials.
- Financial Planning: SenzIQ was a bootstrapped company with some government grant. I planned the cash flow, the burn-rate and the expected runway for SenzIQ. Our executive team was able to generate self-sustaining revenues from the beginning till the handover. I identified and evaluated several business models and revenue generation techniques and selectively pruned those not aligned to our culture and future plans.
- Technical: Lead architect for the product. Continuously enhanced the product with feedback from customers and trial partners. Evaluated future technical directions for the product and helped reduce technical debt.

Azeem Technologies, Mumbai, India

Director **Aug 2014 to Jul 2018**

- Consultancy: Worked with individuals and educational institutes to identify and provide expert advice on technology purchase, knowledge and technology transfer and developed custom solutions for small scale problems. Collaborated with third-parties to design robust enterprise solutions for large educational institutes.
- Business to Technology Translation: Worked with educational institutes to understand their processes, identify pieces that could be digitized and produce accountability, transparency and increase speed. Provided consultancy services and acted as a validator for technology acquisition and integration.

- Project Manager & Developer: Lead a team of three software engineers. Architected and helped develop three software solutions specific to educational institutes catering to tracking student performance, attendance and grievances using web and mobile based solutions. Used agile programming principles and test driven development to build robust, extensible software.
- Marketing and Sales: Performed the role of marketing and salesperson in the absence of dedicated personnel. Interacted with dozens of potential customers, carried out follow-ups, took surveys of end users and formalized intangible and qualitative feedback into tangible areas of suggested improvement.

Motorola, Arlington Heights, Illinois USA

Senior Software Engineer in Global Telecom Solutions Sector **Mar 2000 to Apr 2003**

- Wrote code for call processing inside the Mobile Switching Centre for CDMA 3G IS2000, specifically stable call and hard handoffs. Assisted in all aspects of testing, debugging and on-site support
- Used C++ with VxWorks RTOS.
- Helped create an automated testing framework (using Python/Tcl), performed regression testing (using Python /Perl) before handover and performance testing.
- Mentored juniors and peers from other functional areas; gave presentations to peers and upper management on technical and process improvement aspects; created workshops to encourage and develop better processes and methodologies. Was awarded the Bravo award twice. Chosen twice as principal contact for first integration testing.
- Functioned as technical lead towards end of project. Led an investigation to absorb the best practices of extreme programming and agile methods. Created tools to automatically track validated requirements and check against minimum handover requirements.

Microsoft Research India, Bengaluru, India

Intern in Mobile and Networking Systems Group **May 2009 to Oct 2009**

- Researched ideas on automated diagnostic and potential solutions of network faults from network traces.
- Participated in experiments conducted by other research teams .

Academic Experience

Singapore Management University, Singapore

Research Fellow **Sep 2018 - Dec 2019**

- This was a jump role undertaken to essentially commercialize the research that was done earlier by myself and my colleagues. The role involved managing a team of four people to productize the research, applying for and successfully obtaining a grant for doing the same. The role also required successfully negotiating terms of licensing for the startup (SenzIQ Pte Ltd) and clearing the Lean Startup Programme. This role required intensive collaboration with several stakeholders and their interests.

Oriental Institute of Management, Mumbai

Lecturer **Feb 2013 - Aug 2018**

- Teach the subject of Information Management Systems and data analysis. Incharge of the IT infrastructure of the college. Performed several cost-cutting measures by introducing more streamlined processes in functioning.

Singapore Management University, Singapore

Research Fellow **Jul 2011 - Jan 2013**

- Indoor Localization: Engaged in developing novel fingerprint and non-fingerprint based techniques for the area of indoor localization. Led a team of research engineers to implement a solution that provides ±4 metre accuracy on Android smartphones in real buildings in Singapore. Additionally helped implement a working cloud assisted solution for iOS devices on SMU campus.
- CAMEO: A new architecture proposal for advertisement delivery on smartphones to reduce delivery costs for wireless telecom operators and to reduce the burden on metered wireless data plans of consumers. Implemented a prototype version in Android user space which was demoed at Mobisys 2012.
- LiveLabs: A framework residing both in the smartphones and in the cloud that enables near realtime analytics on consumer behaviour with smart algorithms powering the identification and classification of consumer activity. Led a team of PhD students on architecture and design and collaborated on implementations of ancilliary projects.

Indian Institute of Technology Bombay, Mumbai, India

Research Engineer **Jan 2005 - Dec 2008**

- Helped implement a national experimental testbed to evaluate QoS over WAN across India. Eight different institutes all over India were part of this experiment over the ERNET. Co-designed and co-architected a solution to integrated the IIT Bombay campus PBX with other institutes' PBXes over WAN using open source software and custom developed software.
- In Spring 2005, conducted experiments on performance of Intel Centrino wireless chipsets in closed indoor environments. Performed data analysis, prepared detailed documentation and presented results and conclusions.

University of Mumbai, Mumbai, India

Classroom Instructor **Jan 2004 to Dec 2004**

- Instructor for the C# programming language Fall 2004
  - Responsible for 3 hours lectures every week, biweekly assignments and evaluations, laboratory practicals, all semester tests and their evaluations.
- Instructor for Basic Electronic Devices and Circuits Fall 2004
  - Responsible for 3 hours lectures every week, monthly assignments and evaluations, laboratory simulations and experiments, all semester tests and evaluations.
- Instructor for Computer Organization and Design Spring 2004
  - Responsible for 4 hours lectures every week, biweekly assignments and their evaluations and mid-semester exams and evaluations.

- Lab Instructor for Analysis of Algorithms Spring 2004
  - Responsible for 0.25 hour lecture and supervision of 3.15 hour laboratory where sophomore undergraduate students wrote programs in C++ implementing the data structures and algorithms taught in the classroom
  - Developed supplementary course material encouraging students to apply known algorithms to problems appearing in real life.

Publications and Demos

K. Muralidharan, A. Khan, A. Misra, R. Balan and S. Agarwal, Barometric Phone Sensors – More Hype than Hope, *Proceedings of the Fourteenth Workshop on Mobile Computing Systems & Applications (HotMobile 2014)*, San Diego, U.S.A., Feb 2014.

A. Khan, K. Jayarajah, D. Han, A. Misra, R. Balan and S. Seshan, CAMEO: A Middleware for Mobile Advertisement Delivery, *Proceedings of the 11th international conference on Mobile systems, applications, and services (Mobisys 2013)*, pp. 125–127, Taipei, Taiwan R.O.C., June 2013.

A. Khan, V. Ranjan, T. Luong, R. Balan and A. Misra, Experiences with Performance Tradeoffs in Practical, Continuous, Indoor Localization, *Proceedings of the The Fourteenth International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM 2013)*, pp. , Madrid, Spain, June 2013.

A. Khan, V. Subbaraju, A. Misra and S. Seshan, Demo: Context driven advertisement optimizer, *Proceedings of the 10th international conference on Mobile systems, applications, and services (Mobisys 2012)*, pp. 487–488, Low Wood Bay, Lake District, UK, June 2012.

A. Khan, V. Subbaraju, A. Misra and S. Seshan, Mitigating the True Cost of Advertisement-Supported "Free" Mobile Applications, *Proceedings of the Twelfth Workshop on Mobile Computing Systems & Applications (HotMobile 2012)*, pp. 1–6, San Diego, California, Feb 2012.

A. Khan, A. Sahoo and D. Manjunath, Implementation of WFQ in a Distributed Open Software Router, *Proceedings of the 36th IEEE Local Area Networks Conference*, pp. 519–527, Bonn, Germany, Oct. 2011.

N. Athaide, A. Khan, D. Manjunath and A. Sahoo, Trie Partitioning in Distributed PC Based Routers, *Proceedings of the First International Conference on Communications Systems and Networks* , pp. 1–10, Bengaluru, India, Jan. 2009.

A. Khan, R. Birke, D. Manjunath, A. Sahoo, and A. Bianco, Distributed PC based routers: Bottleneck analysis and architecture proposal, in *Proceedings of High Performance Switching and Routing 2008*, pp. 57–62, Shanghai, China, May 2008.

A. Bianco, R. Birke, J.M. Finochietto, L. Giraudo, F. Marenco, M. Mellia, A. Khan and D. Manjunath, Control and management plane in a multi-stage software router architecture, in *Proceedings of High Performance Switching and Routing 2008*, pp. 235-240, Shanghai, China, May 2008.

Technical Skills

Extensive experience in networking, IT and system administration.

- *Technology*: Very comforable with most aspects of networking related technologies and protocols. Have worked extensively with mobile related technologies for more than 15 years. Have lucid understanding of most modern developments like virtualization, containers, blockchain, cloud computing, big data and machine learning.
- *Hardware*: Comfortable with IBM compatible PCs. Have extensive experience of development on the Android platform. Some experience on other ARM platforms like the Raspberry Pi. Extensive work done on embedded system environments.
- *Software*: Comfortable with Linux for development. User of Microsoft Windows since version 3.1 and DOS since version 5.0. Using Linux since kernel 1.2 (1994). Limited experience with MacOS.
- *Programming*: Extensive work with PHP and Java. Comfortable with C. Knowledge of PHP framework Yii2 with corresponding knowledge of OOPS, MVC, MVVM. Clear on the basics of design patterns and SOLID principles. Working knowledge of HTML, CSS and C++. Limited knowledge of shell scripting and Perl.

- *System Administration*: Administered web and ssh Linux servers for several years. Some knowledge of router configuration for small to medium sized networks. Moderate knowledge of enterprise applications like Zabbix, Moodle, MySQL RDBMS.

Visits and Conferences and Meetings

- Tutorials co-Chair on the COMSNETS 2022 conference.
- Volunteer Chair on the committee of the ACM Mobisys 2016 conference.
- Attended the IEEE COMSNETS 2015 conference.
- Presented our research work on mobile advertising at ACM Mobisys'13 in Taipei, June 2013. Was awarded the maximum travel grant to attend the conference.
- Demonstrated an implementation of our research project on mobile advertising—CAMEO at Mobisys 2012 held in Low Wood Bay, UK in June 2012.
- Presented a paper on my research at the 36th IEEE Local Area Networks Conference, Bonn, Germany in October 2011. Was selected as *one of the only two* students given travel grant to attend the conference.
- Received the best PhD research presentation award at the 3rd International Conference on Communications Systems and Networks (COMSNETS 2011), in Bangalore India, in January 2011. Also acted in the role of a conference volunteer.
- Attended the ACM SIGCOMM 2010 Conference in New Delhi, Aug-Sep 2010.
- Attended the Microsoft Research Summer School on Networking at Bengaluru, India in June 2009.
- Attended the First International Conference on Communications Systems and Networks (COMSNETS 2009) in Bangalore, India in January 2009 .
- Attended the Second International Symposium on Advanced Networks and Telecommunications Systems (ANTS 2008) in Mumbai, India in December 2008.
- Presented a paper on my research at the IEEE Workshop on High Performance Switching and Routing 2008 , Shanghai, China in May 2008.
- Attended the Fourteenth National Conference on Communications (NCC 2008) in Mumbai, India in Feb 2008.
- Presented my research at the Inter IIT COMNET meet of PhD students in IIT Chennai in November 2007.
- Attended the nineteenth meeting of the World Wireless Research Forum in Chennai, India in November 2007.
- Visiting researcher to Politecnico Di Torino during Sept. 2006 to Oct. 2006 in Turin, Italy. Worked on a joint research project with Prof. Andrea Bianco and other PhD students. A report on my work was submitted to the Indian and Italian government departments facilitating the exchange.

References

Available upon request.