V I V E K   P A N D E Y

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PROFESSIONAL EXPERIENCE

Nov 2014 – July 2019   ***QGraph, acquired by Appier***   ***Cofounder, CTO***

Led the technology team from the inception of QGraph to its eventual sale

- Conceived the idea; hired and led the team of 20 people, raised angel funding, got 30+ clients for SaaS tool
- Sold the company to Appier (a Sequoia, SoftBank funded Taiwan based startup), in May 2018
- Designed overall system architecture: SDKs, data ingestion layer, backend, UI, analytics. Wrote code for most of the components.
- Architecture in brief: SDKs (Android, iOS, web) send user data to backend server written in Jetty, which puts user data in Kafka queues. Python based consumers put data in MongoDB, fronted by Aerospike/Redis, and an in-house append only database. Customer accesses a web-based platform written in ReactJS (which was rewrite from AngularJS) and runs campaigns. Campaign runner, a Python service, accesses MongoDB and several caches to find relevant users and sends notifications. Infrastructure hosted on AWS.
- Architected iterations of backend as requests rose from 0 to ~200M a day, and clients rose from 0 to ~30.
- Key technical challenge we solved was high performance segmentation: given the profiles and activity streams of 100M+ users, how to quickly find users satisfying a set of criteria, while keeping infrastructure cost low
- Wrote a recommendation engine based on collaborative filtering, used to fill product slots in notifications
- Some media links: https://techinasia.com/appier-qgraph-aiqua, https://appier.com/news/appier-launches-ai-driven-proactive-marketing-automation-platform-aiqua

Nov 2011 – Jun 2014   ***Vizury Interactive Pvt Ltd (Bangalore)***   ***Technical Architect***

Led Real Time Bidding (RTB) and Analytics teams

- Worked on integration with exchanges, propagation of information (bids, impressions, clicks, sales) to bid servers for better bidding. Built monitoring and alert systems. Programing language was Python and PHP.
- Pioneered the machine learning project for smart bidding. Developed a model (Naïve Bayesian) and employed it across a cross section of campaigns. Delivered superior results compared to default approach.
- Maintained the big data infrastructure at Vizury, which was built on Hadoop. Wrote several Pig and Hive jobs for custom reports.
- Made an internal "Pig/Hive as a service" tool as a hackathon project, which became popular internally, and survives to this day, at https://icloud.lemnisk.co.
- Mentored engineers, helped management in deciding tech priorities, helped in hiring

Oct 2005 – Jun 2008   ***VMware Inc., Palo Alto, CA (USA)***   ***Senior Member of Technical Staff***

I worked in the core performance group at VMware.

- Implemented efficient migration of memory pages from a NUMA node to another NUMA node when the VM execution migrates across the NUMA node. This led to a patent as described later.
- Implemented VM scheduling across NUMA nodes to ensure fairness not only in execution times but also in terms of locality of memory
- Did a detailed study of the pros and cons of AMD RVI (known as NPT – Nested Page Tables technology)
- Supervised a 5 member team in conducting performance and resolving performance problems.
- Received 7/7 rating (given to very few) in the performance appraisal in 2007.

June 2005 – Aug 2005   ***Intel Corp, Santa Clara, CA***   ***Summer Intern***

- Worked on multi core simulator to design the microprocessor support for highly parallel applications

- Proposed software and hardware approaches for implementation of "task queues".
- Got a job offer from Intel MRL (Microprocessor Research Laboratory), usually given only to the PhDs.

May 2002 – Aug 2002   **INRIA Rocquencourt, France**   *Summer Intern*

- Worked on evolutionary (genetic) algorithms. Implemented two crossovers in INRIA's evolutionary algorithm library

EDUCATIONAL QUALIFICATIONS

2008 – 2010   *Indian Institute of Management, Bangalore*
- Post Graduate Program in Management (MBA)   CGPA 3.43/4.00

2003 – 2005   *University of Illinois at Urbana Champaign, Illinois, USA*
- Master of Science (Computer Science)   CGPA 3.5/4.0

1999 —2003   *Indian Institute of Technology Kanpur*
- Bachelor of Technology (Comp. Sc. & Engg.)   CGPA 9.7/10.0

PUBLICATIONS AND PATENTS

- Got a patent titled " Method for Improving Memory Locality in Virtual Machines" in May 2008: https://patents.justia.com/patent/8719545
- Got a patent titled "Prioritizing large memory page allocation in virtual machines" in Jan 2013: https://patents.justia.com/patent/8769184
- Co-authored and presented a paper titled "DMA Aware Memory Energy Conservation" in HPCA, 2005. The conference, held at Austin, TX, was attended by over 400 people across more than 20 countries.
- Co-authored a paper titled "Dynamic Tracking of Page Miss Ratio Curve for Memory Management" ASPLOS, 2004, held at Boston, MA. ASPLOS is one of three best conferences in Computer Science

PROGRAMMING EXPERIENCE

- Languages: Python, C, Java
- Big data tools: Hadoop, Pig, Hive
- Android: Wrote large parts of Android SDK: https://repo.spring.io/jcenter/com/quantumgraph/sdk/QG
- Deep learning: Some experience with Keras. Won one gold and one silver medals in two Kaggle competitions: https://www.kaggle.com/thevivekpandey
- AWS: EC2, S3, ELB, CloudWatch, SQS, RDS, IAM
- Databases: MySQL, MongoDB, Vertica
- Other tools: Kafka, Aerospike, Grafana

ACADEMIC ACHIEVEMENTS

- Won Gold Medal in Indian National Physics Olympiad. Among 35 students across India to do so (1999)
- Amongst 22 students selected to represent state in Indian National Mathematics Olympiad (1998)
- Won the Best B.Tech. Project award among 30 projects for undergraduate thesis at IIT Kanpur (2003)
- Stood 8th and 3rd respectively in state in UP Board Intermediate and High Schools examinations respectively

HOBBIES

- Interested in running. I have participated in several half marathon and 10K races.
- Interested in learning languages: Apart from being fluent in English and Hindi, I can read Kannada and Urdu and some Tamil. I can read about 200 Chinese characters. Have taken courses in Japanese and German.
- Blog at https://thevivekpandey.github.io