Anique **Tahir**

aniquetahir@pm.me | (480) 432-9104 | Tempe, AZ
aniquetahir | aniquetahir | https://cat.ninja

Education

Arizona State University *Tempe, AZ*
PhD in Computer Science *Jan 2019 – Present*

Arizona State University *Tempe, AZ*
MS in Computer Science *Jul 2015 – Aug 2018*

Lahore University of Management Sciences *Lahore, Pakistan*
BS in Computer Science *Oct 2008 – Jul 2012*

Work Experience

Arizona State University *Tempe, AZ*
CIS Research Aide *May 2019 – Present*
- Working with Deep Learning models and cloud infrastructure to predict successful and unsuccessful crowd sourced projects.

Arizona State University *Tempe, AZ*
Graduate Teaching Associate *Jan 2019 – May 2019*
- Graduate Teaching Associate for CSE 340: Principles of Programming Languages
- Teaching students course content during recitations
- Helping students with programming projects focused on lexers, parsers, and type systems

Arizona State University *Tempe, AZ*
Teaching Assistant/Grader *Aug 2016 – May 2017*
- One of the Teaching Assistants for 'Intro to Software Engineering'. Responsible for conducting recitations for the course involving Software Engineering practices
- One of the Graders for 'Distributed Database Systems'. The course focuses on Distributed Database systems concepts with Apache Spark and Hadoop as examples

Arizona State University *Tempe, AZ*
Graduate Services Assistant *May 2016 – Aug 2016*
- Worked on the development of automation tools using Selenium and Mechanize to mine data from the Dark Web
- Lead one of the teams tasked with creating automated systems for crawling and parsing dark web data where we evolved the system to handle a large part of the dark web
- One of the contributors to the provisional patent related to our work and one of the first people to work on the project which later became the startup CRY3CON

Sofizar/ConstellationCK *Lahore, Pakistan*
Sr. Software Engineer *Apr 2013 – Jun 2015*
- Full Stack development over LAMP, WISA
  Worked on several Full Stack development projects including event ticket search engines, an ecommerce website, and information portals. I have worked with several web technologies and frameworks as a result including Node, PHP, Javascript, CSS, Apache, Nginx, IIS, ASP.net, Laravel, and Prestashop
- Responsible for the development of distributed systems on Physical and Cloud based(AWS) infrastructure
  Created a distributed multi-threaded system from scratch in C# to help with Search Engine Optimization. This tool helped in crawling websites to help rank keywords in order to improve the sites' position in organic search results. This system had an entire team of internal users in the company who used it extensively everyday as part of their work process.
- Responsible for over a dozen projects over two years
  I had the highest number of resolved issues and projects per time on the internal bug tracker used by Sofizar.

Skills

Programming Languages: Javascript/Node, Python, Java, C, C++, C#, PHP, BASH
Frameworks: numpy, pandas, matplotlib, Keras, Apache Spark, Hadoop, React, MapReduce, scikit-learn, Docker, Nginx, webpack

Projects

Thesis: A Framework for Spatial Database Explanations

A framework based on Apache Spark for generating explanations from database observations

Tools: Java, Apache Spark, Hadoop, Javascript, Mapbox/Deck.gl, React, Node
The thesis outlines a framework to explain observations made on spatially heterogeneous data. The framework uses a spatial hierarchy based on clustering techniques to perform aggravation and intervention. Aggravation is an approach that looks at the observation from the perspective of parts of the data while intervention is an approach that looks at the effect of removing different parts. The framework outlines a dynamic programming strategy based on the spatial hierarchy to calculate spatial explanations.

Geospatial queries using Apache Spark and HDFS

A library for performing operations on geospatial data stored in HDFS using Apache Spark Java API inspired from GeoSpark.

Tools: Java, Apache Spark, Hadoop
This was a group project where we designed a library for performing operations on geospatial data stored in HDFS using Apache Spark Java API. We implemented five geospatial queries: Geometry Union, Geometry Convex Hull, Geometry Closest/Farthest Pair, Spatial Range Query and Spatial Join Query

Capstone Project(B.S.): Realtime texture mapping using 3d object representation

A solution which maps facial features to a 3d representation in real time *https://youtu.be/gzLAIpvukA4*

Tools: C++, OpenCV, OpenGL
The idea of this approach is to map facial features to a 3D representation using barycentric coordinates. Projective transformations can then be used on the 3D model to match the pose in the input. Textures and effects added to the 3D model can then be remapped to the face. I developed this approach 5 years before animoji!

HDP Course Recommendation

Course Recommendation system which used HDP Topic Model to predict courses based on keywords as user input and Academic publications as corpus

Tools: matlab, python
This is a group project to help students find courses that might suit them based on their interests. Hierarchical Dirichlet process(HDP) is an approach which classifies a corpus of documents using a bag of word into a set of latent topics. Our approach used the publications by the instructors of every course in Arizona State University to associate a latent topic to each course. The latent topic best associated with each keyword was used to suggest courses.

Publications

2019 — **GeoSparkViz in Action: A Data System with built-in support for Geospatial Visualization w/ Yu et. al**, *ICDE 2019*
A system for visualizing Geospatial Big Data.
GeoSparkViz is a big data visualization framework. It works on datasets spanning billions of tuples. When we try to visualize data on a single system, it is limited by the systems' resources. For web visualizations, there are additional limitations introduced by the browser. This paper tries to solve these problems. I was responsible for working on the web interface for the demo

2019 — **An Automated Framework for Explaining Facts Extracted From Mobility Datasets w/ Sun et. al**, *IEEE MDM 2019*
Interesting patterns in data can be explained using predicates using our proposed system
In this paper, we outline an automated system for explanations which is optimized for mobility datasets. My contribution in this paper is the spatial explanation framework that is being used. I created the framework as part of my Masters thesis.

2016 — **Patent(Provisional) 62/409,291 w/ Paulo Shakarian et. al**,
Systems and Methods for an Intelligent Infrastructure for Cyber Threat Intelligence Gathering
This is an patent related to the work I have done in the CySIS lab at ASU. I was involved, alongside a group of 15 students, in creating an automated system for crawling and parsing the dark web for cyber threat information. We created crawlers based on selenium and mechanize over a proxy to gather information from TOR and I2P websites.