

# Zhuocheng Shang

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## EDUCATION

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### University of California, Riverside

*PhD student in Computer Science*

*Sep. 2021 – Present*

### University of California, Riverside

*M.S. in Computer Science*

*Sep. 2019 – Apr. 2021*

### Lindenwood University, St.Charles, Missouri

*B.S. in Computer Science, Honors of Magna Cum Laude*

*Jun. 2015 – May 2019*

## RESEARCH INTERESTS

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Big Data, Spatial Data, Spatial Computing, Distributed System, Database

## PUBLICATIONS

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### Viper: Interactive Exploration of Large Satellite Data

| *Raster, Vector, Progressive Query*

SSTD, 2023

- Addresses the progressive zonal statistics problem that given big satellite data, an aggregate function, and a set of query polygons, zonal statistics computes the aggregate function for each query polygon over raster data.

### Object Delineation in Satellite Images

| *Raster, GIS Application*

SpatialGems, 2022

- Presents a light-weight and linear algorithm that delineates pixels into geospatial rings.
- Delivers exact vectorization representations with geospatial information.

## CURRENT RESEARCH

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### RDPro: Distributed Processing of Big Raster Data

| *Raster, Spark*

Nov. 2022 – Present

- Provides distributed features for loading and writing big rasters based on Spark.
- Produces efficient implementations for the core raster Map Algebra operations.

## WORKSHOP & TEACH ASSISTANT

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### Workshop

- UCR DS Fellowship workshop: Intro to Satellite Data processing (August, 07, 2023)
- UCR gradquant workshop: Bringing Satellite Data Down to Earth (May, 17, 2023)

### Teaching Assistant

- CS 167 - Introduction to Big Data (Winter 2023)
- CS 226 - Big-data Management (Fall 2022)

## RESEARCH PROJECT EXPERIENCE

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### Riverside County Pesticides Web Application, UCR and Department of Agriculture

| *Java, SpringBoot, REST API, JavaScript, MySQL*

Jan 2020 – June 2020

- Engineered a Web Application with MySQL database, JavaScript, HTML and Java back end.
- This application allows agricultural departments to document pesticides records and faculty information.
- Parsed KML file with Leaflet API and visualized Riverside agriculture field layers on a web map.
- Overhauled SpringBoot framework to generate front requests, REST API and manage data with MySQL.

### 2D to 3D Road Network Visualization, UC Riverside

| *Spark, Big Data, OpenStreetMap*

Sep. 2019 – Dec. 2019

- Applied prototypes of visualization 3D road network on Google Earth Engine with generated KML.
- Combined OpenStreetMap 2D road data and DEM data through Spark RDD.
- Applied grid format to original data with GeoTrellis packages.
- Generated unlabeled points with Delaunay Triangulation Algorithm with surrounding points.

## PROFESSIONAL EXPERIENCE

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### **Software Engineering Intern**

*LenderPrice Company*

May. 2021 – Aug. 2021

*Pasadena, California*

- Angular JS, Java, REST API
- Developed necessary unit testing code for front-end components.
- Applied responsible front-end and back-end code for upgrading applications.
- Analysed different scenarios caused problems based on application and database responds.