

## EXPERIENCE

(Sorted by Relevance)

### Founder | Tucson Pathways

Oct 2018 – Present

- Created [tucsonpathways.org](https://tucsonpathways.org); a route-planner web-map that provides cycling-directions focused on safer, quieter, more scenic bicycle-routing (see online [Slidedeck](#) & [Web-map](#) for more details)
- Routing engine software maximizes use of Residential Street-Network along with Traffic-Controlling Crosswalks, to bypass High-Traffic Roadways (web-map currently in pre-alpha development, as an operational proof-of-concept)
- Project utilizes OpenStreetMap datasets, Mapbox-GL architecture, and a customized Graphhopper routing engine
- Daily-workflows involve: QGIS, Git Bash, JOSM, iD, Geofabrik, Overpass-Turbo, Mapbox-GL API, Graphhopper API, Geojson.io, web-design (HTML/CSS/Javascript), Docker, ogr2ogr, and Python
- Entirely self-taught in all softwares listed above, while working full-time as a Bartender & Bicycle-Mechanic in Tucson
- Project has been featured in [Arizona Public Media](#) & [KVOA News](#)

### GIS Analyst Intern | City of Tucson, Bicycle & Pedestrian Program

May 2017 – Sept. 2017

- Analyzed methods used to generate the [Bicycle Network Analysis web-map](#) for the City of Tucson
- Utilizing city data along with open-source data from OpenStreetMap to validate the accuracy of Tucson's Bicycle Network Connectivity Score
- Work will better bicycle infrastructure through the City of Tucson, to determine where to direct resources for future infrastructure projects

### GIS Research Analyst (Contractor) | Natural Infrastructure Program, World Resources Institute May – Nov 2014

- Developed all methods and geospatial analysis for the *Forests-for-Water Map Platform* – series of global map datasets intended for corporate audiences, that illustrate where green infrastructure can mitigate water management issues; using WRI's [Aqueduct Water Risk Atlas](#), [Global Forest Watch](#), & [Atlas of Forest Landscape Restoration Opportunities](#)
- Studied natural and anthropogenic processes affecting forestry, watershed hydrology, and land-use change; Created metrics to evaluate their impact on water security in a GIS-framework
- Led in-office meetings and directed project workflow; frequently briefed supervisors & colleagues on research findings
- Well versed in ArcGIS, data management, python scripting, spatial analyst tools, modelbuilder, online data networks
- Authored presentations, GIS datasets, project proposals, reports, maps, audience notes, blog posts, and infographics

### GIS Hydrological Technician | Water-Use Program, United States Geological Survey March 2010 – Aug 2013

- Regularly modeled water-use and energy-use by watershed, state, and national boundary for agricultural, municipal, thermoelectric, industrial, mining, hydroelectric usage, as part of [The National Water Use Information Program](#) & [The Arizona Water Resources Reporting Program](#)
- Very well versed in industrial-agriculture practices and associated effects on water-use and land-use (e.g. irrigation systems efficiencies, crop consumptive-use, multi-cropping practices, GW vs. SW delivery systems, etc.)
- Designed object-oriented databases/equations to calculate statewide water-use, from user defined parameters and variables (for estimation models in agricultural, municipal, and thermoelectric water-use categories)

### Project Coordinator Intern | Office of Sustainability, University of Arizona

Jan 2012 – Jan 2013

- Developed expertise in a wide variety of sustainable technologies, their benefits and limitations
- Managed Water Harvesting Team – assisted in design and planning of rainwater-capture and flooding mitigation projects
- Gained experience with community outreach, grant writing, marketing, and earthworks design

### GIS Data Mapping Intern | Watershed Management Group

Jan 2009 – Feb 2010

- Analyzed city infrastructure and earthworks feature, and their effect on urban stormflow mitigation
- Provided GIS support for analysis of rainwater harvesting systems throughout the City of Tucson
- Digitized and analyzed various flood-mitigating earthwork features in ArcMap

### Compost Officer | University of Arizona, Compost Cats

June 2012 – June 2013

- City-wide student led operation, gathered 300,000 lbs/year of food-waste and reprocessed to compost
- Helped in education/outreach/sales programs with locals businesses & community organizations
- Gained experience, and newfound appreciation for farm operation, equipment, and labor practices

## PUBLICATIONS & HONORS

### **Lead-Developer | Global Natural Infrastructure Opportunity Web Map (Draft Project Data)**

[Forests for Water Management Webmap \(Draft\)](#) ; Cobean, D; (Published Nov 2015)

*Summary: Natural Infrastructure (e.g. Forests, Wetlands, Riparian Vegetation...) has been proven to help mitigate various water risk (e.g. reduce flooding, regulate water chemistry, sedimentation capture...). As a Proof-of-Concept, global sedimentation risk was mapped and alongside is forest conservation and forest restoration efforts which would mitigate that risk.*

- Lead Developer of all methods and resulting datasets as part of WRI's Natural Infrastructure Program

### **Author | Scientific Investigation Report, United States Geological Survey**

Dickens, J., Forbes, B., Cobean, D., Tadayon, S.; (Nov. 2011). [Documentation of Methods and Inventory of Irrigation Data Collected for the 2000 and 2005 U.S. Geological Survey Estimated Use of Water in the United States, Comparison of USGS-Compiled Irrigation Data to Other Sources, and Recommendations for Future Compilations.](#)

- Marked as a *Publication of Note* by the USGS Office of Science Quality and Integrity
- Was one of approximately a dozen undergraduate student in the nation to be published with the USGS

### **Top Presentation | Donald R. Davis Undergraduate Award**

Cobean, D., Whitaker M., Tadayon, S.; El Dia del Agua Conf. Tucson Az, (March 2011). *Analysis and Utilization of the Arizona Cropland Data Layer Map as a Source of Crop Acreage in Consumptive Use Estimates of Irrigation Water Use*

## EDUCATION

### **Bachelor of Science, with Distinction | Applied Mathematics & Environmental Hydrology**

University of Arizona, Tucson Arizona (May 2013)

**Coursework Included:** • Environmental Physics • Risk Assessment for Environmental Systems • Linear Algebra  
• Mathematical Modeling • Field Hydrology • Atmospheric Science • Advanced Calculus • Hydrogeology

## LEADERSHIP & VOLUNTEER

### **Youth Climbing Instructor | Rocks & Ropes Climbing Gym**

**June 2018 – Jan 2020**

- Volunteered 1-on-1 with kids (ranging 4-16 years old), coaching in sport-climbing/bouldering

### **Board Member | University of Arizona Sports Club Allocation Committee**

**Sept 2008**

- Allocated \$45,000 in total, to various UA sports organizations, per committee review
- Inventoried more than \$200,000 worth of yearly expenses from the UA Club Sports Program

### **President | University of Arizona Men's Ultimate Frisbee**

**May 2007 – May 2009**

- Managed club budget, student accounts, schedule of events, weekly officer meetings
- Renovated club's accounting and payment system to adopt online system
- Organized UPA-sanctioned College Sectionals Tournament (2008 & 2009)

### **Tutor | Mathematics and Physics**

**Aug 2004 – May 2009**

- Developed competence in student-teaching methods
- Mathematics – Algebra, Calculus I & II, Vector Calc, Matrix Analysis, Differential Equations
- Physics – Kinematics I, Thermodynamics I, Electromagnetics I

## SUBJECT-MATTER EXPERIENCE

**Geospatial Analysis:** • ArcGIS 9.0 – 10.3 • QGIS 3.1 • ModelBuilder • QGIS Graphical Modeler • OpenStreetMaps  
• iD (OSM Editor) • JOSM (OSM Editor) • ogr2ogr • Photoshop • Google Docs/Drive • Microsoft Suite

**Program Languages:** • Git • Mapbox-GL Api • Graphhopper 0.13-1.0 API • HTML • JavaScript • jQuery • CSS  
• SQL • Bootstrap 3-4 • Leaflet.js • CartoCSS • Python

**Sector-Specific Knowledge:** • Urban Design Theory • City Planning • Industrial Agriculture • Web-Mapping

- Technical Writing • Data Visualization • Data Management • Project Development • Leadership/Team Management
- Communication • Sustainable Dev. Technologies • Watershed Hydrology • Natural Resources Management