Christopher Choi

Fort Collins, Colorado
Christopher.Choi@colostate.edu • 323.362.7395

Education

UNIVERSITY OF CALIFORNIA, BERKELEY   *Aug 2018 – May 2020*
- *B.A. in Physical Geography, Minor in Geospatial Information Science and Technologies*   **GPA: 3.6**

EL CAMINO COLLEGE   *Jan 2016 – May 2018*
- *Associates in Arts: Biology & Physical Science (With Honors), Associates in Science: Geography (With Honors)*   **GPA: 4.0**
- *Dean's List (5-time recipient)*

Research Experience

RESEARCH ASSOCIATE – *Evangelista Laboratory, Colorado State University*   *April 2022 – Current*
- Researching to understand impacts of climate change, natural resource management and disturbance to rangelands
- Wrangling, cleaning, and preparing extensive tabular and GIS data in preparation towards research efforts including developing the Colorado's first above-ground carbon inventory in partnership with the Colorado State Forest Service
- Developing fieldwork datasets and solutions towards research, monitoring, and educational projects in the laboratory

NASA DEVELOP PROJECT LEAD – *Science Systems and Applications Inc.*   *Jun 2021 – Aug 2021*
- Coordinated with scientists at the **Natural Resource Ecology Lab** at Colorado State University and the **USGS** to **conduct habitat suitability modelling** and **detect invasive cheatgrass** across post-fire ecosystems in Colorado
- Engineered remote sensing applications in **Google Earth Engine, R Statistical Language, and VisTrails** using **Sentinel-2**, **Landsat 8** and **SRTM** satellite imagery that derived vegetation, climate, and topographic variables
- Guided team members in **ArcGIS Pro**, Google Earth Engine, and cartography by hosting GIS symposiums

NASA DEVELOP TEAM MEMBER – *Science Systems and Applications Inc.*   *Sep 2020 – Apr 2021*
- **Modelled the effectiveness of treatments at reducing fire severity** during the Cameron Peak and CalWood fires
- Standardized 29000+ forest fuel reduction treatment zones by collating multiagency databases spanning 50 years
- Collaborated closely with community, state, federal, and research organizations to inform forest treatment decisions. These have included **The Colorado State Forest Service** and **The Nature Conservancy, Colorado Chapter**
- Identified suitable coastal redwood habitats by **creating fog mapping products** using **MODIS and GOES-17 satellite imagery** to assist the non-profit Save the Redwoods League in forest management and land acquisitions
- Utilized **RandomForest machine learning algorithm** to quantify past, current, and future coastal fog dynamics
- Produced **presentations**, wrote **technical papers**, created **ArcGIS StoryMaps** and **video presentations**

RESEARCHER – *Brashare's Group, UC Berkeley*   *Jun 2020 – April 2022*
- Investigated "The spatial overlap of small-scale cannabis farms with aquatic and terrestrial biodiversity" in Oregon by determining hotspots of cannabis plantations and effects to native species' ranges as a result to land use change
- Utilized **ArcGIS Pro** and **R Statistical Language** to map disturbance and create scientific map and statistical figures

RESEARCHER – *Buma Laboratory, University of Colorado, Denver*   *Feb 2021 – Current*
- Partnered with National Geographic to develop an article on tree cover and biodiversity change in Washington D.C.
- Reconstructed historic street tree canopy cover and biodiversity by digitizing historic maps and satellite imagery

UNDERGRADUATE RESEARCH ASSISTANT – *Kelley Research & Outreach Lab, UC Berkeley*   *Sep 2019 – Dec 2019*
- Mapped "Human-Carnivore Conflict and Carnivore Movement in Rift Valley, Kenya" by digitizing maps
- Analyzed camera trap imagery to study 25+ wildlife species and their behavioral habits towards migratory barriers

RESEARCH ASSISTANT – *Hong Kong University of Science and Technology – Life Sciences Dept.*   *Jun 2016 – Aug 2016*
- Measured environmental E. coli populations and dissolved oxygen by field sampling aquaculture sites and wetlands

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Professional Experience

MITIGATION MAPPING TECHNICIAN – *Oregon Department of State Lands*   *Sep 2021 – Current*
- Overhauled GIS datasets to support multiuser collaborative mapping across **desktop, web, and mobile platforms**
- Developed **field mapping** methodologies using GNSS receivers and **instructed users** to accurately survey wetlands
- Produced **ArcGIS Enterprise** and **ESRI Portal** products that could reduce operation costs by $7000+ per annum

GIS / RTK INTERN – *South Slough National Estuarine Research Reserve*   *Sep 2020 – Nov 2020*
- Devised a **multivariate accessibility analysis** for potential lamprey eDNA sampling sites for citizen scientists at the Coos Estuary, Oregon using **NHD, LiDAR,** and **road network data** from a variety of state and federal agencies
- Surveyed lands for wetland mitigation banking potential by analyzing LiDAR elevation data and aerial imagery
- Constructed GIS tools using **ArcMap's Model Builder** to automate geoprocessing tools for replicability
- **Presented project results** to estuarine research reservation scientists, community leaders, and tribal representatives

Additional Experience

D1A MEN'S RUGBY PLAYER – *Colorado State University*   *Sep 2022 – May 2023*
- Competed at the highest collegiate level of men's rugby in the Mountain West conference in both rugby 15s and 7s
- Awarded the rugby 7s most valuable player of the Spring 2023 season through exemplary teamwork and commitment

FIELD ASSISTANT – *California Department of Fisheries and Wildlife*   *Apr 2021*
- Surveyed the ecological effects of cannabis cultivation as part of California Environmental Monitoring and Assessment Program by deploying drift fence systems, camera traps and acoustic recorders for multi-species analysis
- Conducted data collection using **Survey123** and referenced **Garmin GPS devices** for navigating to survey locations

GEOGRAPHY DEPARTMENT REPRESENTATIVE – *UC Berkeley*   *Feb 2019*
- Spoke to 300+ visiting high school students to provide information regarding the geography major at UC Berkeley

Publications

Vorster, A., Stevens-Rumann, C., Young, N., Woodward, B., Chambers, M.E., **Choi, C.T.H**., Cheng, A.T., Caggiano, M., Schultz, C., Thompson, M., Grenier, M., Aplet, G., Addington, R.N., Battaglia, M.A., Bowker, D., Bucholz, E., Buma, B., Evangelista, P., Fordham, A.W., Muleller, S., Rhoades, C., Romme, W.H., Huffman, D., Sánchez-Meador, A.J., Tinkham, W.T., Tuten, M. (2023). Metrics and considerations for evaluating if forest treatments alter wildfire behavior and effects. *Journal of Forestry. (In Review)*

Werner, Z., **Choi, C.T.H.**, Winter, A., Vorster, A.G., Berger, A., O'Shea, K., & Woodward, B. (2022). MODIS sensors can detect and monitor spatiotemporal trends in fog and low cloud cover at 1 kilometer resolution along the US Pacific Coast. *Remote Sensing Applications: Society and Environment*. https://doi.org/10.1016/j.rsase.2022.100832.

Parker-Shames, P., **Choi, C.,** Butsic, V., Green, D., Barry, B., & Moriarty, K. et al. (2021). The spatial overlap of small-scale cannabis farms with aquatic and terrestrial biodiversity. *Conservation Science And Practice*. doi: 10.1111/csp2.602.

Selected Presentations

Choi. C.T.H.. Understanding the Impact of Forest Management on the Cameron peak and CalWood Fires. *Pecora Conference 2022*. Oct 25, 2022.

Choi, C.T.H., Rock, M., Posen, A., Vannest, N., & Bakke, A.. Monitoring Post-Fire Cheatgrass (*Bromus Tectorum*) Distribution to Inform Management Planning. *NASA DEVELOP Closeout Presentation*. Aug 09, 2021.

Klisausakite, J., Vorster, A.G., Osborne, S., Zhang, M., & **Choi, C.T.H.**. Pre-fire forest treatment characterization within the Cameron Peak and East Troublesome Fires. *Colorado State University **Poster Presentation***. Apr 23, 2021.

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Swayze, N., **C.T.H.**, Knowlton, G., & Klisauskaite, J.. Understanding the Impact of Forest Management on the Cameron Peak and Calwood Fires. *NASA DEVELOP Closeout Presentation*. Mar 29, 2021.

Werner, Z., Berger, A., Winter, A., & **Choi, C.**. Detecting and Forecasting Fog Occurrence, Frequency, and Change to Support Coast Redwood (Sequoia sempervirens) Habitat Assessments. *NASA DEVELOP Closeout Presentation*. Nov 16, 2020.

Awards

DEVELOPer OF THE TERM — *NASA DEVELOP Program*   *Aug 2021*
GEOGRAPHY MERIT AWARD — *El Camino College*   *Apr 2017*

Technical Skills

- R Statistical Software
- ArcGIS / Esri Suite
- Google Earth Engine
- Cartography

- Python
- HTML & CSS
- Machine Learning
- Illustrator/Photoshop