Christopher Tsz Hin Choi

Fort Collins, Colorado
Christopher.Choi@Colostate.edu

Education

COLORADO STATE UNIVERSITY *Aug 2023 – Current*
- *M.Sc. in Graduate Degree Program of Ecology (Research thesis track)* ***GPA: 4.0***
- *Graduate Certificate in Data Analysis*

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 – *Natural Resource Ecology 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 such as developing the Colorado's first statewide carbon storage inventory in partnership with the USDA
- 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

Christopher Tsz Hin Choi

Fort Collins, Colorado
Christopher.Choi@Colostate.edu

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

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. G., **Choi, C. T. H.**, Prentice, A. M., Young, N., Kuegler, O., Gaetani, M., West Fordham, A., & Bucholz, E. (2024). Colorado forest carbon inventory: Forest ecosystem and harvested wood product carbon accounting framework through 2019. *Colorado State Forest Service Report*. Fort Collins, CO: Colorado State Forest Service.

Vorster, A. G., Stevens-Rumann, C., Young, N., Woodward, B., **Choi, C. T. H.**, Chambers, M. E., Cheng, A. S., Caggiano, M., Schultz, C., Thompson, M., Greiner, M., Aplet, G., Addington, R. N., Battaglia, M. A., Bowker, D., Bucholz, E., Buma, B., Evangelista, P., Huffman, D., . . . Fordham, A. W. (2023b). Metrics and considerations for evaluating how forest treatments alter wildfire behavior and effects. *Journal of Forestry*, 122(1), 13–30. https://doi.org/10.1093/jofore/fvad036

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

Choi, C. T. H., Bakke, A., Posen, A., Rock, M., Vannest, N. (2021). Colorado Ecological Forecasting: Monitoring post-fire cheatgrass (*Bromus tectorum*) distribution to inform management planning. *NASA Technical Reports Server (NTRS)*. https://ntrs.nasa.gov/citations/20210021858

Swayze, N., **Choi, C. T. H.**, Knowlton, G., Klisauskaite, J. (2021). Colorado Front Range Disasters: Understanding the Impact of Forest Management on the Cameron Peak and CalWood Fire. *NASA Technical Reports Server (NTRS)*. https://ntrs.nasa.gov/citations/20210014944

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

Werner, Z., Berger, A., Winter, A., **Choi, C.T.H.** (2020). California & Oregon Ecological Forecasting: Detecting and Forecasting Fog Occurrence, Frequency, and Change to Inform Coast Redwood (*Sequoia sempervirens*) Habitat Assessments. *NASA Technical Reports Server (NTRS)*. https://ntrs.nasa.gov/citations/20205011618

Christopher Tsz Hin Choi

Fort Collins, Colorado
Christopher.Choi@Colostate.edu

Conference Presentations

"Advancing Post-Fire Forest Carbon Assessments: Integrating TLS and FIA Data in the Southern Rockies," Front Range Student Ecological Symposium, Colorado State University, Fort Collins, Colorado, ***Speaker,*** Feb 2025

"Lessons Learned: Evaluating How Forest Inventory and Analysis Program and Terrestrial Laser Systems Forest Carbon Measurements Compare in Burned Forests," Forest and Inventory Analysis Science Symposium, United States Forest Service, Virtual, ***Speaker***, Nov, 2024

"Carbon dynamics in Colorado's forests: an FIA-based inventory framework," Forest and Inventory Analysis Science Symposium, United States Forest Service, Virtual, ***Co-Author***, Nov 2024

"Wildfire Impacts on Forest Carbon: Fusing Forest Inventory and Analysis Data and Terrestrial Laser Systems," Society of American Foresters, Loveland, Colorado, ***Speaker***, Sep 2024

"Adapting State Forest Carbon Inventory Frameworks: Lessons and Results from Colorado," Society of American Foresters, Loveland, Colorado ***Co-Author***, Sep 2024

"Understanding the Impact of Forest Management on the Cameron Peak and CalWood Fires," William T. Pecora Memorial Remote Sensing Symposium (PECORA 22), Denver, Colorado, ***Speaker***, Oct 2022

"Using MODIS to Monitor Spatiotemporal Trends in Fog and Low Cloud Cover along the US Pacific Coastline," William T. Pecora Memorial Remote Sensing Symposium (PECORA 22), Denver, Colorado, ***Co-Author***, Oct 2022

Other Presentations

Choi, C., 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.**. Pre-fire forest treatment characterization within the Cameron Peak and East Troublesome Fires. *Colorado State University* ***Poster Presentation***. Apr 23, 2021.

Swayze, N., **C.Choi, C.**, 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.

Workshops

REPRODUCIBLE RESEARCH IN R – *Colorado State University* *Mar 2025*

- Co-led an in-person and virtual workshop on best practices coding in R Studio and Github to 25+ graduate students
- Directed hands-on exercises to set participants up with Github, practice coding best practices, and versioning code

TRANSITIONING FROM ARCMAP TO ARCGIS PRO – *Oregon Department of State Lands* *Mar 2022*

Mentorship

MEN'S RUGBY FAULTY ADVISOR – *Colorado State University* *Aug 2023 – Current*

NASA DEVELOP SCIENCE ADVISOR – *Colorado State University* *Apr 2022 – Current*

Christopher Tsz Hin Choi

Fort Collins, Colorado
Christopher.Choi@Colostate.edu

Awards

OUTSTANDING ORAL PRESENTATION – *Front Range Student Ecology Symposium* *Feb 2025*

DEVELOPer OF THE TERM – *NASA DEVELOP Program* *Aug 2021*

- Description: *Chris[topher Tsz Hin] Choi was the team lead for the Colorado Ecological Forecasting team at the Colorado DEVELOP location. Over the course of the term, Chris was an incredible leader, keeping the team focused and handling challenges with poise. As the term progressed, Chris managed any uncertainties regarding the project and was able to work new products into the project smoothly. Throughout the term, Chris was a technical leader, not only to his teammates, but also other DEVELOP teams. Chris was an all-around fantastic DEVELOPer, earning praise from his teammates and advisors throughout the term.*

GEOGRAPHY MERIT AWARD – *El Camino College* *Apr 2017*