

Work

For years my office was a rainforest. I tracked possums and birds across the Australian Wet Tropics, and my models helped decide which species received legal protection. Research taught me to design the measurement first, state every assumption and deliver under real constraints. I hold my AI work to the same standard: if it can't be evaluated, it can't be trusted.

2024 to now

Postdoctoral fellow

James Cook University · Australia

I work on the endangered spectacled flying fox, which lost about a third of its population to a single heatwave in 2018. I model roost microclimates to forecast high-risk heat events and to guide interventions before the next one.

2020 to 2024

PhD candidate, Quantitative Ecology

James Cook University · Australia · Cum laude

I studied climate change impacts on rainforest birds and possums in the Australian Wet Tropics. My hierarchical Bayesian models on three decades of monitoring explained the declines, and the results fed formal protection nominations.

2019

Research assistant

James Cook University · Australia

I ran standardised vertebrate surveys across the Wet Tropics, part of the long-term monitoring program that later powered my doctoral models.

2017 to 2018

Research and conservation leader

Kaa-Iya National Park · Bolivia

I led the park's research and conservation programs. The work covered big cat monitoring, supported by the University of Florida and the Wildlife Conservation Society, and ranger training in biodiversity monitoring.

2016 to 2017

Head biologist

CONAF, Puyehue National Park · Chile

This was my first professional data role. I ran the park's field programs and population monitoring, trained rangers and published my first paper on a mass bamboo flowering event.

- VOLUNTEERING AND OTHER FIELD EXPERIENCES

- Vertebrate biodiversity monitoring in the Australian Wet Tropics.
 - Organisation: James Cook University.
 - Country: Australia.
 - Year: 2019 - present.
- Yellow-tailed woolly monkey *Lagothrix flavicauda*, survey, mammals' inventory and community-based conservation work in the Peruvian Cloud Forest and the Peruvian Amazon Rainforest.
 - Organisation: Neotropical Primate Conservation and Lush Cosmetics.
 - Country: Peru.
 - Year: 2018-2019.
- Breeding bird survey at Fairburn Ings Natural Reserve.
 - Organisation: Royal Society for the Protection of Birds.
 - Country: UK.
 - Year: 2018.
- Exploration and description of Andean flora and fauna in Puyehue National Park.
 - Organisation: CONAF.
 - Country: Chile.
 - Year: 2016-2017.
- Annual population monitoring of the Darwin's Frog (*Rhinoderma darwinii*).
 - Organisation: Andres Bello University.
 - Country: Chile.

- Year: 2017.
- Big cats monitoring in Kaa-Iya National Park.
 - Organisation: Bolivian National Parks (with the support of University of Florida and WCS).
 - Country: Bolivia.
 - Year: 2017.
- Population monitoring of black rats, population and breeding monitoring of cormorants and Cory's shearwater.
 - Organisation: SPEA Life+ Berlengas.
 - Country: Portugal.
 - Year: 2016.
- Population monitoring of amphibians and semi-aquatic mammals.
 - Organisation: University of Salamanca.
 - Country: Spain.
 - Year: 2016.
- Population dynamics of Balearic lacertids.
 - Organisation: University of Salamanca.
 - Country: Spain.
 - Year: 2016.
- Recovery and release of endemic Iberian fauna.
 - Organisation: AMUS.
 - Country: Spain.
 - Year: 2015.
- Rescue and rehabilitation of primates.
 - Organisation: RAINFER.
 - Country: Spain.
 - Year: 2014-2015.
- Animal care and wildlife rehabilitation and release.
 - Organisation: Zoo de Santillana Foundation.
 - Country: Spain.
 - Year: 2013.

- PROFESSIONAL DEVELOPMENT AND COMMUNITY-BASED CONSERVATION

- Biodiversity consulting.
 - Organisation: Wet Tropics Management Authority.
 - Country: Australia.
 - Year: 2024.

- Expert workshop participation: Improving the resilience of the Wet Tropics bioregion.
 - Organisation: Wet Tropics Management Authority.
 - Country: Australia.
 - Year: 2024.
- Training of local rangers in biodiversity monitoring.
 - Organisation: Queensland National Parks and Wildlife Services.
 - Country: Australia.
 - Year: 2020 - 2022.
- International Ecology School.
 - Country: Thailand.
 - Year: 2022.
- Indigenous rangers training in biodiversity monitoring, data collection, curation, and interpretation.
 - Organisation: Aborigine: indigenous environmental organisation.
 - Country: Australia.
 - Year: 2020.
- Indigenous community engagement for the conservation of the critically endangered Yellow-tailed woolly monkey.
 - Organisation: Neotropical Primate Conservation.
 - Country: Peru.
 - Year: 2018.
- Training of local rangers in biodiversity monitoring.
 - Organisation: Bolivian National Parks.
 - Country: Bolivia.
 - Year: 2017.
- Training of local rangers in biodiversity monitoring, community engagement, and science communication.
 - Organisation: CONAF - Chilean National Parks.
 - Country: Chile.
 - Year: 2016 - 2017.

- FIELD AND MODELLING SKILLS

- Animal trapping
- Modelling
 - Population dynamics
 - Biophysical models
 - Occupancy

- Species distribution
- Landscape ecology
- Movement
- Climatic data and other time-series
- Spatial analysis
- Stats
 - Frequentist
 - Bayesian
- Coding
 - R
 - WinBUGS
 - Python
 - SQL
- AI
 - Prompt engineering
 - Agentic AI
- Languages
 - Spanish, first language
 - English, IELTS 7.0
 - French, basic

– MEDIA ENGAGEMENT

- Possums threatened by climate change
 - Article. JCU media
 - Total media coverage - 70 national stories
- Aussi birds dissapearing due to warming
 - Article. Narromine News
- Global warming drives Wet Tropics possums species fromt their mountain homes.
 - Article. ABC news
 - Interview. ABC news
- It's Easy to Hate Selfies. But Can They Also Be a Force for Good?
 - Photo contribution. New York Times
- Woody bamboo flowering in Puyehue National Park.
 - Article. El Austral, Chile.
- Tropical rainforest research

Education

- B.S. in Biology, Universidad de Salamanca, 2014
- M.S. in Biology and Conservation of Biodiversity, Universidad de Salamanca, 2016
- Ph.D. in Quantitative Ecology, James Cook University, 2024 (Cum laude)

- CERTIFICATES AND TRAINING

Bayesian and hierarchical modelling

- Statistical Rethinking: A Bayesian Course with Examples in R and Stan
- Statistical Rethinking 2023, online course, Richard McElreath
- Bayesian Methods for Ecology, Michael A. McCarthy
- Applied Hierarchical Modeling in Ecology
- Integrated Population Models

R

- R for Data Science
- Statistics in R workshop, Dr Murray Logan (AIMS). Covers tidyverse, ggplot2, R Markdown, linear models, GLMs and GLMMs, mixed-effects models and multivariate analyses.

Python and machine learning

- The Complete Python Bootcamp: From Zero to Hero in Python (certificate). Covers core Python, data structures, OOP, error handling, file work and web scraping with Requests and BeautifulSoup.
- Python for Data Science and Machine Learning Bootcamp (certificate). Covers pandas, NumPy, Matplotlib, Seaborn, Plotly and scikit-learn: regression, trees, random forests, SVM, k-NN, K-Means, PCA, intro NLP and deep learning with Keras and TensorFlow.
- Machine Learning Specialisation, DeepLearning.AI, Andrew Ng (certificate). Covers supervised learning, advanced learning algorithms, unsupervised learning, anomaly detection, recommenders and introductory reinforcement learning. Module certificates: supervised learning, advanced algorithms, unsupervised learning.

SQL and databases

- The Complete SQL Bootcamp: PostgreSQL & pgAdmin (certificate). Covers querying, aggregation, joins, schema fundamentals and pgAdmin tooling.
- SQL for Data Analysis: Advanced SQL Querying Techniques (certificate). Covers subqueries, CTEs, window functions, NULL-safe handling and reusable views.

AI engineering

- AI Engineer Core Track: LLM Engineering, RAG, QLoRA, Agents (certificate). Covers frontier APIs, open-source models, RAG, frontier and QLoRA fine-tuning, and agent deployment with LangChain and Gradio.
- ChatGPT Prompt Engineering for Developers (certificate). Covers structured prompting, iterative refinement and the OpenAI API.
- Agentic AI, Andrew Ng (certificate). Covers task decomposition, reflection, tool calling and multi-agent coordination.
- AI Agents in LangGraph (certificate). Covers graph-structured agent workflows, state, tracing and human-in-the-loop checkpoints.
- Evaluating AI Agents, DeepLearning.AI (Arize AI) (certificate). Covers agent decomposition, tracing with Arize Phoenix, router, skill and trajectory evaluations, judge design and production monitoring.
- Building and Evaluating Advanced RAG, DeepLearning.AI (LlamaIndex, TruEra) (certificate). Covers the RAG triad with TruLens, sentence-window and auto-merging retrieval, and evaluation-driven iteration.
- Knowledge Graphs for RAG, DeepLearning.AI (Neo4j) (certificate). Covers Cypher, vector search over graph data and graph-backed question answering.
- Agentic Knowledge Graph Construction, DeepLearning.AI (Neo4j) (certificate). Covers multi-agent schema inference and knowledge graph construction with Google's Agent Development Kit.
- Claude Code: A Highly Agentic Coding Assistant, Anthropic (certificate). Covers agentic coding workflows, context discipline, subagents, git worktrees, hooks and MCP servers.
- Agent Skills with Anthropic (certificate). Covers skill design and packaging, progressive disclosure, and skills with the Claude API and the Claude Agent SDK.
- MCP: Build Rich-Context AI Apps with Anthropic (certificate). Covers MCP servers and clients with FastMCP, reference servers and remote deployment.

Version control

- The Git & GitHub Bootcamp (certificate). Covers branching, merging, rebasing, recovery workflows and GitHub collaboration.

Cloud

- AWS Certified Cloud Practitioner, CLF-C02 (certificate). Covers core AWS services, IAM, networking, monitoring and cost governance at a conceptual level.

Grants and awards

Grants

- 1. Skyrail Foundation (top-up): "Determinants of spatial variation in population density in a tropical folivore community". \$5,000.
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- 1. Wet Tropics Management Authority, Climate Action Grant: "Why are Ringtail Possums declining in the Australian Wet Tropics?". \$7,500.
- 1. James Cook University, scholarship: "Determinants of spatial variation in population density in a tropical folivore community". \$98,000 over 3.5 years.
- 1. University of Salamanca, scholarship (Master's degree): "Implementation of GIS and species distribution models on studies of niche marginality of threatened plants". €10,000.
- 1. University of Salamanca, scholarship (undergraduate). €6,000.
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Awards

- 1. Best talk prize for best presentation, Zoology and Ecology North Queensland, Mission Beach: "Songs of disappearance: Rainforest Montane Birds and Climate Change".
- 1. Second best presentation, TESS conference, Palm Cove: "Possums in Peril: The Urgent Need to Address Climate Change Impacts on Tropical Montane Species".
- 1. Best post-graduate presentation at the Conference Talk Skill Workshop, ESA-SCBO conference, Wollongong: "Predicted alteration of vertebrate communities in response to climate-induced elevational shifts".
- 1. People's Choice award for the best presentation, Zoology and Ecology North Queensland, Mission Beach: "Climate change threatens the future of rainforest ringtail possums".
- 1. Second best talk, annual conference of the Centre for Tropical, Environmental and Sustainability Science: "Predicting species abundance by implementing the ecological niche theory".

Alejandro de la Fuente

Melbourne, Australia · Terms