Alexander Fache

Remote Sensing Researcher & Graduate Thesis Student at Boston University
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Career Objective

Former electrical engineer and enterprise software engineer turned remote sensing researcher. I aim to develop machine learning models to predict the behavior of rangelands and agricultural ecosystems under climate and food production pressures utilizing satellite observations. My research supports long-term goals of sustainable farming and livestock practices, while protecting carbon sequestration ecosystems and identifying regions for ecological restoration.

Seeking Summer 2026 remote sensing research/internship positions in land cover change and satellite derived products to support these goals.

Research Experience

Remote Sensing Graduate Research Assistant | Boston University **09/2025 – Present**

Department of Earth and Environment, Center for Remote Sensing

Advisor: Mark Friedl, Land Cover and Surface Climate Group

- Currently mapping shrub expansion in the Western Unites States with Sentinel 2 10m fractional cover vegetation data.
- Course experience in remote sensing derived products, ArcGIS Pro/QGIS geospatial analysis, Marxan conservation decision making.

Robotics Research Assistant | Georgia Tech **08/2018 – 04/2020**

Department of Electrical and Computer Engineering

Advisor: Patricio Vela, Intelligent Vision and Automation Laboratory

Year 2 scope: Expanded operating range of lab developed robotic snake; previous exploration limited due to 20ft power tether.

- Detected snake with Turtlebot using mounted web camera; located magenta patches on snake "scales" for relative pose.
- Followed snake through linear/angular PID control; maintained safe distance for snake to explore unperturbed.
- Outcomes: expanded snake operating range from 20ft to entire building floor; enabled more diverse mapping experiments.

This work resulted in peer recognition for best poster at Georgia Tech (2020) and was sponsored by Texas Instruments and NSF.

Year 1 scope: Developed two locomotion gaits for robotic snake; enabling increased maneuverability for complex terrain traversal.

- Prototyped rectilinear motion primitive commands in Matlab for quicker exploration speed, transcribed to ROS-Python.
- Developed head scan motion primitive, increasing camera field of view for more detailed SLAM keypoint detection.
- Outcomes: increased snake platform mobility and functionality aiding in greater flexibility for PhD students/lab research.

This work resulted in a publication in the National Conference on Undergraduate Research (NCUR) at Kennesaw State University (2019) and was sponsored by Texas Instruments and NSF.

Education

Boston University | Boston, MA

M.A. Earth & Environment (GPA: 4.00 / 4.00) **09/2025 - 12/2026 expected**

- Remote Sensing specialization

Georgia Institute of Technology (Georgia Tech) | Atlanta, GA

M.S. Electrical Engineering (GPA: 3.85 / 4.00) **01/2021 - 12/2021**

- Systems and Controls specialization

B.S. Electrical Engineering (GPA: 3.83 / 4.00) Highest Honors **08/2016 - 12/2020**

- Computer Science minor, Robotics minor

Professional Experience

Customer Success Manager | C3 AI | Redwood City, CA **06/2024 - 06/2025**

- Promoted as company's first Customer Success Manager (CSM); responsible for four high potential customer accounts.
- Responsible for deployment of applications from pilot phase to live production.
- Conducted user acceptance testing (UAT), production readiness reviews (PRR), end-user onboarding, operational tasks.
- Strategized application adoption, cross-selling, satisfaction of customer champions through KPIs and business value.
- Led generative AI application deployment, troubleshooting, and user onboarding for AWS/GCP Marketplace customers.
- Updated processes and operational changes between organizations to increase internal developer efficiency.
- Distributed weekly tasks across organization via agile framework; prioritizing high risk customers, led weekly customer calls.

Forward Deployed Engineer | C3 AI | Redwood City, CA **03/2022 - 06/2024**

- Full stack development on C3 AI Platform providing feature enhancements, bug fixes, operations support; Javascript, Python.
- Created OpenSearch/Grafana health monitoring dashboards for cluster resource, user activity, application logging management.
- Managed 24/7 global support coverage and incident response for 20+ production customers.
- Developed RACI matrix with department heads to streamline internal operations for PaaS/SaaS customers.
- Responsible for increasing organization headcount from 4 to 10 across USA, London, Bangalore; onboarding mentor for new hires.

Publications

1. A. Faché, et al., "Marsupially-Aided Robotic Snake Exploration and Navigation of Cluttered Environments," in *Proc. Nat. Conf. Undergraduate Res.*, Kennesaw, GA, USA, Oct. 2019, pp. 526-536.

Honors & Awards

Peer Review Award for Best Poster, A. Faché, S. James, K. Lie, A. Chang, and P. Vela, "Cooperative Exploration of Unknown Environments Using a Robotic Snake-Turtlebot Leader-Follower Pair," presented at Georgia Tech, Atlanta, GA, USA, Apr. 2020.

Georgia Tech Highest Honor (Highest distinction for undergraduate degrees) December 2020

Georgia Tech Dean's List (Undergraduate 3.00+ GPA semester) August 2016 - December 2020

Georgia Tech Faculty Honors (Undergraduate 4.00 GPA semester) Spring 2018, Spring 2019, Spring 2020

Skills

Remote Sensing and GIS: QGIS, ArcGIS Pro, Marxan, GeoPandas, Sentinel 2 10m Land Cover

Development: Python, R, JavaScript, Jupyter, Git, GitHub, Ubuntu Linux, Google Antigravity, Docker, MongoDB, React, OpenSearch, SQL, Bash

Projects

Drone YouTube Channel and Tutorials

- Project site: https://www.youtube.com/@AlexFache/
- Captured aerial photos and videos with DJI Air 3S; created how to guides and flight experience videos.
- Built 500mm quadcopter using Pixhawk 4 flight controller; created complementary step-by-step assembly tutorials.
- Built 250mm FPV quadcopter for trick flying.
- 2k+ subscribers, 300k+ views. Video scripting/editing, aerial videography, DaVinci Resolve, YouTube Studio.

Fantasy Football Matchup Visualization Website

- Collected and aggregated 10+ years of historical fantasy football matchup details using BeatifulSoup webscraping.
- Created interactive website charts with React, Rechart. Database and hosting with MongoDB and Heroku.

Property Management via Aerial Drone Imaging, Processing, Change Detection | Georgia Tech

- Project site: https://alexanderfache6.github.io/dronezz/
- Capstone team lead flying Parrot Anafi drone to capture sections of campus property to measure grass health.
- Created data integration pipeline for collecting, cleaning, aligning captures images; Python, Jupyter.
- Ran anomaly detection to locate unnatural objects covering grass fields.
- grass health scoring to determine impact on grass degradation during fall weather.

US Traffic Accidents and Weather Events Analysis Predicting Crash Severity | Georgia Tech

- Project site: https://alexanderfache6.github.io/traffic-accident-weather-analysis
- Analyzed weather conditions and road factors to predict traffic accident crash severity comparing supervised learning models.
- Used Kaggle geospatial and weather dataset; visualizations with Jupyter.

Kidney Cancer Clinical Decision Support Modeling via Medical Imaging Pipeline | Georgia Tech

- Project site: https://alexanderfache6.github.io/TCGA-kidney/
- Used patient kidney tissue samples to classify necrosis, stroma, tumor classes.
- Created preprocessing, feature extraction, supervised learning pipeline to compare predictive models.