ICICLE UAV Research:
Kenyan Animal Study Use Case

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About Me

• PhD student, Computer Science & Engineering

• Research Interests:
  • Autonomous UAVs
  • Edge Computing
  • Ecology & Agriculture applications

• Hobbies: hiking, rock climbing, running and reading

• Summer plans: interning at Los Alamos National Lab Supercomputer Institute
UAV ICICLE

Research

- UAVs allow us to gather data in large remote areas quickly
- Autonomous navigation is cheaper and more reliable than manually piloted flights
- Research into autonomous flight models and edge computing infrastructure required
Edge Architecture for Autonomous UAVs

- Autonomous Swarms
- Edge Networks
- AI for Edge
Animal Ecology
Mpala Research Center

- Traveled to Laikipia County, Kenya
- Worked with group of researchers from OSU, Vtech, and Princeton
- Mpala is a research center and working ranch
- Flew UAV missions to collect behavior data on zebras and giraffes
Me with a drone

View from Land Rover

Grevy’s Zebras
Traditional Data Collection
Data Collection with UAV
Current Works

• Edge & autonomic computing with UAVs in Imageomics paper in review
• Annotated behavior from drone dataset paper in submission
• Ecology methods paper in progress
Future Research:
ICICLE for Animal Ecology Applications

Intelligent cyberinfrastructure
Democratize AI
Democratize AI

Questions?
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Thank you!