

## CONTACT

+123-456-7890

xg62@cornell.edu

xxx St., Ithaca NY

## EDUCATION

**Cornell University**  
**Engineering Physics**

Expected May 2024

# SAM GOU

Undergraduate Student in Engineering

## RESEARCH EXPERIENCE

**NANOFABRICATION OF 2D MATERIALS** Aug 2023 - Present  
**FUCHS GROUP, CORNELL UNIVERSITY**

- Preparing monolayers of transition metal dichalcogenides (TMDs) through exfoliation for nanofabrication;
- Investigating exciton physics in a MoSe2 capacitor device, induced by the polarization switching of BTO;
- Developing a model of the capacitor in COMSOL to estimate the polarization-induced electric field in MoSe2.

**ELECTRON-ION COLLIDER (EIC) DESIGN** Aug 2023 - Present  
**ERL/EIC GROUP, CORNELL CLASSE**

- Simulating beam trajectories using Bmad and Tao to help the design of the Electron-Ion Collider (EIC) at Brookhaven National Laboratory;
- Performing simulations of slow extraction that produces a continuous beam of protons out of the Booster accelerator to study the effects of a uniform bombardment of protons. This extraction will be used in the EIC.

**GENERAL RELATIVITY TESTING** Apr 2020 - Nov 2020  
**POLAR RESEARCH INSTITUTE OF CHINA**

- Investigated the possibility of validating General Relativity (GR) by observing perihelion precession in extrasolar planetary systems, emphasizing the radial velocity (RV) method;
- Developed an analytic formula for evaluating the sensitivity of perihelion precession in RV measurements, applying this formula to identify optimal exoplanets in the NASA Exoplanet Archive for GR testing;
- Utilized Python's RadVel package to model RV curves of selected exoplanets, fitting synthetic data to identify systems where the GR effect is detectable within a decade under ideal conditions.

## PROFESSIONAL EXPERIENCE

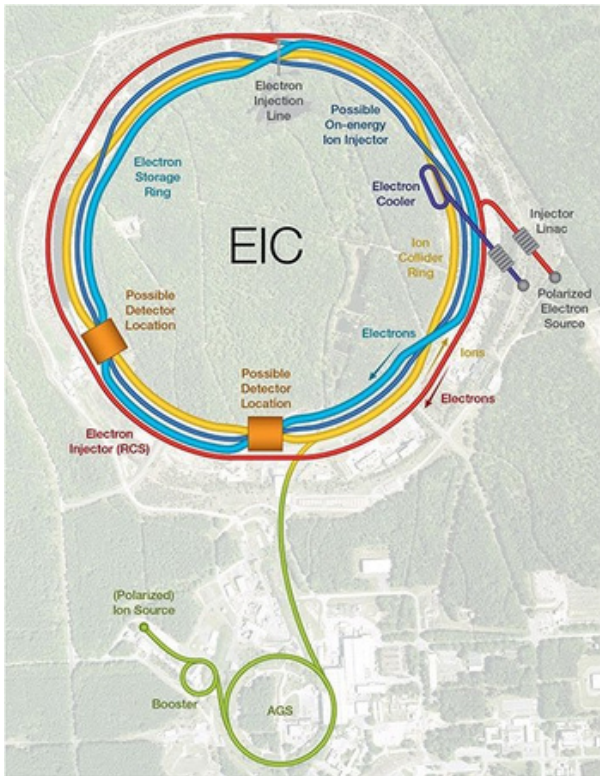
**TELECOMMUNICATIONS INTERN** Dec 2021 - Apr 2022  
**AODONG ELECTRONIC TECHNOLOGY**

- Developed an efficient conversion of time-domain and frequency-domain representations of frequency stability;
- Implemented a MATLAB-based simulation program to model the impact of phase noise on velocity measurement precision, utilizing the proposed frequency stability conversion method;
- Executed comprehensive experiments with TT&C systems across a range of carrier frequencies, validating the accuracy and wide applicability of the phase noise model for long-range target measurements.

## TEACHING EXPERIENCE

**UNDERGRADUATE TA** Aug 2023 - Dec 2023  
**AEP 3330: MECHANICAL PARTICLES AND SOLID BODIES**

- Grade weekly assignments and address students' questions regarding homework.



## SKILLS

Nano Fabrication

SEM Imaging

MATLAB

PCB DESIGN

Python

AutoCAD