Geoffrey George Gaswint

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Software Experience

Antarctic Ross Ice-Shelf ANtenna Neutrino Array - Graduate Student Researcher — Irvine, California - Apr '17 – Dec '20

- Increased neutrino reconstruction capabilities by implementing a python framework which led to first upper bound placed on a radio neutrino detector's angular resolution
- Led multiple science expeditions throughout Antarctica by directing rigorous software and hardware installments which led to a larger effective volume for the main detector on the Ross Ice-Shelf and installed a second detector at the South Pole.
- Established new photon propagation modes in Antarctic ice by implementing a c++ simulation which led to a larger effective volume for the detector.

Theory at University of California, Irvine - Graduate Student Researcher — Irvine, California - Apr '17 – Aug '19

- Showed instability of a varying Yukawa theory in regards to matter-antimatter asymmetry by using python to run coupling constants back in time which reduced the space of grand unified theories in physics.

Raytheon - Systems Engineer — Tucson, Arizona - Nov '15 – Sep '16

- Performance Simulations and analysis (highly calssified)

Cryogenic Dark Matter Search - Undergraduate Researcher — Berkeley, California - Nov '13 – July '15

- Simulated dark matter detector by implementing a Monte Carlo technique using c++ for phonon-electron scattering upon dark matter interactions which led to new insights on allowed solutions.

Large Underground Xenon dark matter experiment - Undergraduate Researcher Berkeley, California - Nov '13 – July '15

- Analyzed CCD images using python that led to new shielding techniques for reduction of background alpha decays.

Personal Projects

iOS and Android apps

- **DodgerMan3000** (iOS, Android): Dodge enemies with auto-fire mechanics through numerous worlds each with 10 phases. Includes upgrades and much more. (built using React Native).
- **MyBestFriend** (iOS, Android): Chat with a human like bot that can provide comfort through jokes, memes, news, and much more. Fully customizable chat screen. (built using React Native).
- **TapThis!/TapThat!** (iOS, Android): Compete with friends to get the best score on pressing multiple buttons at the same time. Includes multiple modes. (built using React Native).

Skills

Proficient: Python • Java • React Native • ReactJS

Familiar: C++ • Git • SQL • Linux Systems

Natural languages: English (*Fluent*) • German (*Intermediate*)

Education

University of California, Irvine — Irvine, California
PHD and Masters in Physics — *2016 – Dec 2020*

University of California, Berkeley — Berkeley, California
B.A. in Physics, B.A. in Mathematics — *2012 – Dec 2014*

Grossmont College and San Diego Mesa College and Southwestern College — San Diego, California
Associate of Arts in German — *2010 – 2012*

Publications

- NuRadioReco: A reconstruction framework for radio neutrino detectors arXiv-1903.07023
- Probing angular and polarization reconstruction of the ARIANNA detector at South Pole arXiv-2006.03027
- White Paper: ARIANNA-200 high energy neutrino telescope arXiv-2004.09841
- Neutrino vertex reconstruction with in-ice radio detectors using surface reflections arXiv-1909.02677
- Targeting ultra-high energy neutrinos with the ARIANNA experiment arXiv-1903.01609
- Revisiting Electroweak Phase Transition with Varying Yukawa Coupling Constants arXiv-1810.02522
- Observation of classically 'forbidden' electromagnetic wave propagation arXiv-1804.10430

Interests

Camping in Antarctica, programming (app development on iOS and Android), teaching, racquet ball, scuba diving, ukulele, and waltz dancing.