# **Nicolaas Justice**

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**EDUCATION**

**Cornell University,** College of Engineering, Ithaca, NY **Expected May 2023**

Master of Engineering in Civil and Environmental Engineering, **GPA: 3.25**

**Cornell University,** College of Arts & Sciences, Ithaca, NY **May 2022**  
Bachelor of Arts in Physics, **GPA: 3.097**

*Selected Coursework:* Energy Technology and Subsurface Resources • Applied Solid State: Physics of Renewable Energy • Future Energy Systems

**SPECIALIZED SKILLS**

**Technical**: Python, OCaml, Javascript, Java, MATLAB, LaTeX, Excel

**Language**: Spanish (conversational)

**RELEVANT ACADEMIC PROJECTS**

**Investigation of Heat Pumps Towards Carbon Neutral Campus at Cornell,** *Department of Civil and Environmental Engineering*, Cornell University **Jan-May 2022**

* Collaborated with a team of 7 peers on an unstructured semester long project investigating how heat pumps could aid Cornell in achieving a carbon neutral campus by 2035
* In depth research and data collection and analysis to design an appropriately sized heat pump mini district for a group of Greek life houses
* Analysis included capacity and cost cost estimates, social and environmental impact predictions, and recommendations for future research
* Findings were given in a 45 page report and presented to relevant Cornell Faculty

**Coal Free SE by 2030,** *Department of Mechanical Engineering,* Cornell University **Jan-May 2022**

* Collaborated with a team of 5 peers to develop a plan for the SE ISO to be coal free by 2030
* Energy usage and production data collection for relevant states, and projections of new renewable energy needs
* Alternate plans provided based on Solar PV or Wind energy foci with projected required capacity and material costs
* Findings were given in a 40 page report and presented to class

**Comparison Between the Solar and Nuclear Energies**, *Department of Civil and Environmental Engineering,* Cornell University **Apr-May 2022**

* Collaborated with one peer to research solar and nuclear energy and compare them to each other and to dominant fossil fuel energy sources
* Research areas include: Energy Capture Technologies, Efficiency, Environmental Justice, Economic Analysis, Environmental Impact and Safety
* Findings were given in a 25 page report and presented to the class

**How the Radiative Cooling Effect Can Improve Photovoltaic Mini-Grid Application in Underdeveloped Communities,** *Department of Applied & Engineering Physics,* Cornell University **May 2022**

* Individual end-of-semester project inspired by a collection of related academic papers
* Gathered research about method of converting heat energy from solar PV panels into electricity at night and presented material to classmates to educate them about the technology at the level of the class

**LEADERSHIP EXPERIENCE**

**Flute Section Leader**, *Big Red Marching Band,* Ithaca, NY **Jan-Dec 2020**

* Responsible for organizing and leading section performances and rehearsals, maintaining section website, keeping inventory of section instruments, and developing and nurturing a sense of community among members

**Equipment Chair**, *Big Red Marching Band,* Ithaca, NY **Feb-Dec 2021**

* Responsible for overseeing inventory of all instrument sections, and sending orders for new parts and repairs

**ACTIVITIES and INTERESTS**

Marching Band; Soccer; Computer Programming and Design; Guitar; Singing; Video Games