

# Prince Dukeze

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<b>EDUCATION</b>	<b>Master's in Mechanical Engineering</b> <span style="float: right;">Expected December 2020</span> University of Texas San Antonio, San Antonio, TX <i>Thesis: Design, Analysis, and Construction of supercritical CO<sub>2</sub> reciprocating Engine.</i>
	<b>Bachelor's in Mechanical Engineering</b> <span style="float: right;">December 2015</span> University of Texas at San Antonio, San Antonio, TX
<b>WORK EXPERIENCE</b>	<b>Design, Analysis, and Construction of supercritical CO<sub>2</sub> reciprocating Engine</b> <span style="float: right;">Aug. 2019 – Present</span> University of Texas San Antonio, <i>Funded Graduate Research Assistant</i> <ul style="list-style-type: none"><li>• Lead a team of both graduate and undergraduate students in the analysis and design of a piston engine of a kW-scale power capacity funded by CPS Energy to demonstrate the feasibility of utilizing sCO<sub>2</sub> as the working fluid in a closed loop power cycle.</li><li>• Conducted an extensive thermodynamic analysis of the system and provided key information necessary for sub-teams in the design and selection of pertinent turbomachinery components.</li><li>• Performed an analysis of the expansion and compression process of pistons using sCO<sub>2</sub> and used the results in designing a functional piston assembly of critical importance to produce work.</li><li>• Served as an engineering liaison between groups to ensure successful integration of various components into the system.</li></ul>
	<b>Mach 7 Hypersonic Wind Tunnel: Design, Analysis &amp; Build</b> <span style="float: right;">Jan. 2019 – Present</span> University of Texas San Antonio, <i>Funded Graduate Research Assistant</i> <ul style="list-style-type: none"><li>• Conducted heat transfer analysis of the driver tube and sized heating components used on the wind tunnel necessary for preventing liquefaction of test gases after expansion through the nozzle.</li><li>• Evaluated insulation materials needed to minimize thermal losses in the system and prevent burn injuries to personnel per industry standards.</li><li>• Member of a team that demonstrated the optical diagnostic technique known as Background-Oriented Schlieren as part of various visualization techniques to be used with the wind tunnel</li><li>• Assisted with the construction and wiring of the primary circuit panel that is used to run the wind tunnel.</li><li>• Member of a team that reviewed design drawings and manufacturing of various components of the wind tunnel.</li></ul>
	<b>Effects of Atmospheric Boundary Layer on Wind Turbines</b> <span style="float: right;">Jan. 2014 - Dec. 2014</span> University of Texas San Antonio <ul style="list-style-type: none"><li>• Performed research to analyze the effect of atmospheric boundary layer on wind turbines.</li><li>• Completed 1D, 2D, and 3D simulations to assist in determining the effects of interactions between nocturnal atmospheric boundary layers and wind turbines.</li><li>• Collaborated regularly with graduate students and faculty staff to share results obtained from simulations.</li></ul>
	<b>Dynamics and Controls Adjunct Lab Instructor</b> <span style="float: right;">Aug. 2019 – Present</span> University of Texas San Antonio <ul style="list-style-type: none"><li>• Instructed two sections of the dynamics and controls lab helping familiarize students with the use of various software to control mechanical systems, such as LabVIEW, Simulink, and Arduino.</li><li>• Taught students fundamental concepts of controls utilized in real world mechanical systems.</li></ul>
	<b>Computer Aided Design (CAD) Grader</b> <span style="float: right;">August 2018 - May 2019</span> University of Texas San Antonio, <ul style="list-style-type: none"><li>• Held TA sessions to help students with design drawings.</li><li>• Graded SOLIDWORKS projects, exams, and homework.</li></ul>
	<b>Engrave-Tech &amp; Graphics, San Antonio, TX</b> <span style="float: right;">March 2016 - June 2016</span> <i>Internship</i> <ul style="list-style-type: none"><li>• Operated mechanical and laser engraving machines using computer-aided graphics software.</li><li>• Interned in a manufacturing environment, fabricating custom interior architectural signage.</li></ul>
<b>SOFTWARE SKILLS</b>	MATLAB, Python, LabVIEW, OpenFOAM (CFD), Simulink, AutoCAD, SOLIDWORKS, Autodesk Inventor, ABAQUS, ParaView, MyRio, Arduino, Linux, Windows