GSFC Engineering & Technology Directorate (Code 500) Pathways Intern Positions to be filled with the Septemer 2023 Vacancy Announcement								
Organization	**Duty Location**	**Position Work Title** (Target Position)	**Core Skill**	**Pathways Intern Track**	**1. Preferred Major**	**2. Preferred Major**	**3. Preferred Major**	**Brief Description of Duties**
Mechatronics and Robotics Branch (Code 544)	Greenbelt	Electronics Engineer	Electro-Mechanical Systems	Engineering	Electrical Engineering	Mechatronics	Computer Engineering	Electronics engineers with control systems, electronics and mechatronics skills are trained in particular to digital and analog electronics design, control system design, electromechanical system design, sensors/actuator design, FPGA design, and signal processing algorithms development. They are required to interface with electromechanical engineers to specify servo and electromechanical systems for precision mechanisms. Electromechanical systems engineers require some specialized coursework and experience to become proficient in these systems. Work assignments range from the lowest technology readiness levels (TRL) to spaceflight applications.
Thermal Engineering Branch (Code 545)	Greenbelt	Aerospace Engineer (Heat transfer)	Thermal Systems Engineering	Engineering	Mechanical Engineering	Aerospace Engineering		The incumbent serves under the tutelage of senior engineering mentors as a Thermal Engineer in training. The thermal engineer provides the support needed to meet the thermal requirements of GSFC spacecraft and instruments, from conceptual design (proposal development) to mission end-of-life. This includes thermal model development and analysis utilizing thermal software programs, development and integration of thermal control systems for spacecraft and instruments, and verification of the designs through rigorous environmental testing.
Contamination & Coatings Engineering Branch (Code 546)	Greenbelt	Planetary Protection Analyst	Contamination	Engineering	Aerospace	Physics	Math	The intern candidate will work closely with senior mentors within the Branch to continue a pipeline of core capability support. All projects will benefit from this core support. The intern will learn the basics of contamination, thermal coatings , and Planetary Protection engineering. The candidate will also perform analytical modelling using molecular and particulate programs. Candidate should have knowledge of coding language to generate changes to modelling software. Experience with MATLAB, python, and Labview a plus.
Mechanical Systems Branch (WFF) (Code 548)	Wallops	Aerospace Engineer	Mechanical Systems Engineering	Engineering	Mechanical Engineering	Aerospace Engineering	aerospace Engineering	Developing research and application engineer to support in-house additive manufacturing (AM) capability. Specialized duties include AM design methodology, topology optimization, and AM processing. Engineer to be exposed to the full breadth of WFF and MSD activities via assignments of increasing scope and complexity in support of a variety of suborbital and special orbital projects during the Pathways tenure.
Environmental Test Engineering & Integration Branch (Code 549)	Greenbelt	Integration Engineer	Flight System Integration, Eng. & Funct. Test	Engineering	Mechanical Engineering	Aerospace Engineering		Serve as a Mechanical Integration Engineer. Under the supervision of senior integration engineers, the intern would earn to plan and execute assembly of flight hardware and ground support equipment and to develop project management skills necessary for effective hardware processing throughout flight project integration and test (I&T) campaigns.

Organization	Duty Location	Position Work Title (Target Position)	Core Skill	Pathways Intern Track	1. Preferred Major	2. Preferred Major	3. Preferred Major	Brief Description of Duties
Optics Branch (Code 551)	Greenbelt	Electronics Engineer	Optical Systems	Engineering	Astronomy	Physics	Astrophysics	The candidate will specialize in optical instrumentation for astrophysics, focusing on optical coronagraphs, adaptive optics, wavefront sensing, and connecting instrumentation work to science data products. The candidate will support the Optics Branch and work closely with astronomers who are working in the field of exoplanet detection and characterization. The candidate must have knowledge of optics, physics, imaging, spectroscopy, astronomy, and/or the design, construction, and/or operation of instrumentation for astronomy. The candidate must also have a background in software, data reduction, and/or modeling.
Cryogenics & Fluids Branch (Code 552)	Greenbelt	Cryogenics Engineer	Cryogenic Component Design, Dev. & Test Eng.	Engineering	Mechanical Engineering	Aerospace Engineering	Physics	This position pertains to cryo-mechanical engineering duties associated with our cryocooler LOB. The candidate will work closely to support the cryocooler systems development and implementation into flight projects as well as various other research and development programs in our branch. Candidates must demonstrate willings to learn about cryogenic systems and cryocoolers and their applications as well as fundamental understanding of heat transfer and thermodynamics.
Microwave Instrument Technology Branch (Code 555)	Greenbelt	Electronics Engineer	RF/Microwave, Millimeter Wave, & Submillimeter Wave Instrument Engineer	Engineering	Electrical Engineering	Electronics Engineering	Engineering Physics	Candidate will be a Microwave / RF Engineer within the Microwave Instruments and Technology Branch (Code 555) at NASA's Goddard Space Flight Center in Greenbelt, MD. Candidate will work closely with senior branch members to support the design, simulation, analysis, assembly, integration, and test of microwave components, systems, and instruments. Candidate must have have completed introductory courses in electromagnetics.
Parts, Packaging & Assembly Technologies Branch (Code 562)	Greenbelt	Electronics Engineer	EEE Parts Engineering	Engineering	Electrical Engineering	Aerospace Engineering	,Mechanical Engineering	Support GSFC Flight Projects in selection, procurement and reliability evaluation of Electronic, opto- electronic and Fiber Optic parts. Support the Branch in building and testing of electronic and Fiber Optic Flight Hardware. Set-up test processes and Test Benches in various Code 562 labs for these testings and evaluations. Increasing requests for support being recd. from multiple new projects.
Parts, Packaging & Assembly Technologies Branch (Code 562)	Greenbelt	Electronics Engineer	EEE Parts Engineering	Engineering	Electrical Engineering	Aerospace Engineering	Mechanical Engineering	Support GSFC Flight Projects in selection, procurement and reliability evaluation of Electronic, opto- electronic and Fiber Optic parts. Support the Branch in building and testing of electronic and Fiber Optic Flight Hardware. Set-up test processes and Test Benches in various Code 562 labs for these testings and evaluations. Increasing requests for support being recd. from multiple new projects.

Organization	Duty Location	Position Work Title (Target Position)	Core Skill	Pathways Intern Track	1. Preferred Major	2. Preferred Major	3. Preferred Major	Brief Description of Duties
Telecommunication Networks & Technology Branch (Code 566)	Greenbelt	Electronics Engineer	RF/Microwave, Millimeter Wave, & Submillimeter Wave Communications System Engineer	Engineering	Electrical Engineering	Computer Science	Aerospace Engineering	Candidate will be an Radio Frequency communication engineer within Code 566, supporting the Exploration and Space Communications Division. Candidate will support the development of Lunar Communication and positioning technologies, in support of the LCRNS (Lunar Communications Relay and Navigation Systems) program. Candidate should have knowledge of free space communications, as well as link budget analysis. Should have an understanding of Software Defined Radio (SDR) and programming, to generate software controlled radio signals.
Telecommunication Networks & Technology Branch (Code 566)	Greenbelt	RF Comm. Research and Development	RF/Microwave, Millimeter Wave, & Submillimeter Wave Communications System Engineer	Engineering	Electrical Engineering	Computer Science	Aerospace Engineering	Candidate will be an optical communication engineer within Code 566, supporting the Exploration and Space Communications Division. Candidate will support the development of Optical/ Laser communication capabilities, including Quantum communication, tracking, and link analysis, to support Agency needs. Candidates with experience in Radio Frequency communication is a plus.
Science Data Systems Branch (Code 586)	Greenbelt	Computer Engineer, AST	Science Data Processing	Engineering	Computer Science	Physics		The Intern will develop and operate data processing systems for space-based magnetometers used for magnetospheric and ionospheric research. These systems employ data science and signal processing algorithms that analyze raw magnetometer telemetry in combination with spacecraft position and attitude, instrument housekeeping parameters, and ground-based calibration data to produce data products with state-of-the-art precision and accuracy. This position is an essential member of a team that supports current and upcoming missions including the NASA MMS mission and the Brazilian SPORT satellite.
Attitude Control Systems Engineering Branch (Code 591)	Greenbelt	Aerospace Engineer	GNC Systems Engineering	Engineering	Aerospace Engineering	Mechanical Engineering	Engineering Physics	Code 591 provides attitude control system analysis and design of spacecraft systems, pointing control systems for instruments and payloads, jitter analysis and mitigation for instruments, guidance, navigation, and control systems engineering, and ground attitude determination and sensor calibration. Incoming Pathways Interns would start as attitude control system analysts supporting a flight mission as they develop their skills to work up our career ladder.
Instrument/Payload Systems Engineering Branch (Code 592)	Greenbelt	Roman Integrated Modeling Tool Development	Systems Engineering	Engineering	Aerospace Engineering	Mechanical Engineering	Computer Science	Integrated Modeling (IM) is a cross-discipline analysis that enables system-level performance evaluation. It is a key tool for verifying mission requirements that cannot be entirely test verified on the ground, as well as supporting many other system engineering functions (e.g. requirements definition, budget flow-down, design trades). The Pathway intern will work on the Roman IM team, learn multi-disciplinary analysis process, develop tools to support IM efforts, and participate in model correlation and validation activities.

Organization	Duty Location	Position Work Title (Target Position)	Core Skill	Pathways Intern Track	1. Preferred Major	2. Preferred Major	3. Preferred Major	Brief Description of Duties
Navigation & Mission Design Branch (Code 595)	Greenbelt	Trajectory Designer/Optimization Engineer	Flight Mission Design	Engineering	Aerospace Engineering	Mathematics	Engineering Physics	The candidate will perform trajectory design and optimization to enable current and proposed Libration point missions like Roman Space Telescope (RST) and Habitable Worlds Observatory (HWO). The candidate will also provide support in designing transfer trajectories for rendezvous and serviceability using tools such as the Evolutionary Mission Trajectory Generator (EMTG) and Adaptive Trajectory Design (ATD) tool, which provide core capability to improve low-cost transfer trajectories within complicated dynamical systems (e.g. Earth-Moon and Sun-Earth).