GSFC Engineering & Technology Directorate (Code 500) Pathways Intern Positions to be filled with the September 12-16, 2022, Vacancy Announcement							
Organization	**Duty Location**	**Position Work Title** (Target Position)	**Core Skill**	**1. Preferred Major**	**2. Preferred Major** (if applicable)	**3. Preferred Major** (if applicable)	**Brief Description of Duties**
Mechanical Engneering Branch (Code 543)	GB	Mechanical Engineer (Aerospace)	Mechanical Design Engineer	Mechanical	Aerospace		Duties include supporting development of critical Mars Sample Return/Capture, Containment and Return System(CCRS) Flight Hardware as well as Mechanical Ground Support Equipment(MGSE). Hire will design needed Flight/MGSE hardware, monitor its fabrication, assembly, and testing and oversee its use/operation for the CCRS Project. Needed in Code 543 to bolster future Mechanical PDLs, leading integrated design, analysis, fabrication and verification teams.
Electromechanical Systems Branch (Code 544)	GB	Mechanical Engineer (Aerospace)	Electromechanical/Mechanism	Mechanical Engineering	Aerospace Engineering		Mechanical and aerospace engineers are trained to design, analyze, develop, integrate and test high accuracy components and systems for precision mechanisms, a class of machinery/instrumentation that often have micron scale features, or even larger components that have range down to nanometer scale tolerances within surface, positioning, or motion. They are required to interface with electromechanical engineers to specify servo and electromechanical systems for precision mechanisms. Mechatronics and robotics engineering are relatively new disciplines that combines all aspects of precision mechanisms. Mechanism and robotic engineers require some specialized coursework and experience to become proficient in these systems.
Electromechanical Systems Branch (Code 544)	GB	Electronics Engineer	Electro-Mechanical Systems	Electrical	Electronics Engineering	Mechatronic	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 Bramch (Code 545)	GB	Aerospace Engineer (Heat transfer)	Thermal Systems Engineering	Aerospace Engineering	Mechanical Engineering	Chemical 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)	GB	Planetary Protection Analyst	Contamination	Aerospace	Physics	Math	The intern candidate will work closely with the Back Planetary Protection (PP) Senior analyst to acquire the skills necessary to continue the capability within the Branch. They will learn the basics of PP as well as software programs to conduct the analytical analyses.

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Mechanical Systems Branch (WFF) (Code 548)	WFF	Aerospace Engineer	Mechanical Systems Engineering	Aerospace Engineering	Mechanical Engineering		Developing engineer to be exposed to the 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.
Encironmental Test Engineering & Integration Bramch (Code 549)	GB	Space Simulation Engineer	Flight System Integration, Eng. & Funct. Test	Electrical Engineering	Electronics Engineering		Serve as a Space Simulation Test Engineer. Plan, organize, and execute thermal-vacuum tests for flight projects in the I&T Complex.
Detetor Systems Branch (Code 553)	GB	Detector Fabrication Engineer	Detector Systems Development Engineer	Physics	Electrical Engineering		The Incumbent serves as an Electronics Engineer in the Detector Systems Branch of the Instrument Systems and Technology Division. The work responsibilities are focused on the development of next generation sub-kelvin cryogenic detectors for Space Flight missions. The major responsibility is to develop, design and test high performance detectors to meet NASA strategic goals. The incumbents are responsible for fabrication development of detectors for applications in the spectral range extending from the submillimeter to the x-ray.
Detetor Systems Branch (Code 553)	GB	Detector Fabrication Engineer	Detector Systems Development Engineer	Physics	Electrical Engineering		The Incumbent serves as an Electronics Engineer in the Detector Systems Branch of the Instrument Systems and Technology Division. The work responsibilities are focused on the development of next generation sub-kelvin cryogenic detectors for Space Flight missions. The major responsibility is to develop, design and test high performance detectors to meet NASA strategic goals. The incumbents are responsible for fabrication development of detectors for applications in the spectral range extending from the submillimeter to the x-ray.
Laser & Electro Optics Branch (Code 554)	GB	Electro-Optics Engineer	Electro-optics/Lasers	Electrical Engineer	Aerospace Engineer		The incumbent will work in 2 critical strategic areas: 1. Navigation, Communication, and Ranging: Duties will include designing and executing ranging for optical communication (Optimetrics) purposes and assisting with the future development of ranging technology for service oriented height precision orbit determination applications. Duties also include planetary and earth science instrument applications of high precision satellite optical ranging for mass change measurement missions. 2. Lidar Design and Development: Duties include detector development and characterization, lidar system engineering, lidar link budget development. This also includes the ability to design and characterize lidar components and target characteristics.
Microwave Instrument Technology Branch (Code 555)	GB	Electronics Engineer	RF/Microwave, Millimeter Wave, & Submillimeter Wave Instrument Engineer	Electrical Engineer			Design and test components and instrument systems in the frequency bands of microwave, submillimeter wave, and far-infrared. Perform integration and test including environmental tests.

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Power Systems Branch (Code 563)	GB	Electrical Power Systems Engineer	Power Electronics Engineer	Electrical Engineering	Physics		Evaluation and design of power management and distribution system, (battery, solar array, and power electronics) and related components used to convert, regulate, control, distribute, store and monitor electrical power for scientific spacecrafts and associated payloads.
Power Systems Branch (Code 563)	GB	Electrical Power Systems Engineer	Power Electronics Engineer	Electrical Engineering	Physics		Evaluation and design of power management and distribution system, (battery, solar array, and power electronics) and related components used to convert, regulate, control, distribute, store and monitor electrical power for scientific spacecrafts and associated payloads.
Instrument Electronics Development Branch (Code 564)	GB	Analog electronics enginer	Analog and Mixed Signal Electronics Engineer	Electrical Engineer	Computer Engineer	Physics	Provides design, development and test of analog and digital electronics and/or FPGA development for use in spaceflight and ground instrument demonstrations.
Telecommunication Networks & Technology Branch (Code 566)	GB	Ground Communication Networks Engineer	Space Communications	Electrical Engineering	Software Engineering	Physics	Candidate will be an Radio or Optical communication engineer within Code 566, supporting the Exploration and Space Communications Division. Candidate will support the development of communication capabilities, including modulation/ demodulation, tracking, and link analysis, to support Agency needs. Candidate must have knowledge of free space communications, as well as link budget analysis. Must have an understanding of coding theory, and data bandwidth analysis
Science Data Processing Branch (Code 587)	GB	Artificial Intelligence (AI) Applied Research Developer	Science Data Processing	Computer Engineering	Computer Science	Electrical Engineering	The Science Data Processing Branch is seeking applicants with experience in developing state of the art Artificial Intelligence (AI) and Machine Learning (ML) applications for both ground and space-based applications that will enable future NASA missions. The applicant should be comfortable in Python 3 and be able to handle Python module dependency situations using virtual environments. Additionally, the applicant would ideally have experience in AI/ML frameworks such as TensorFlow (and/or PyTorch) and know how to use them effectively in a graphics processing unit (GPU) enabled system. Python modules including numpy, matplotlib (and/or plotly), and scikit-learn are heavily leveraged in our development environment . The application will have access to an advanced GPU server farm for development and network training. Developing on remote Linux servers, including the ability to work efficiently on the command line, will be is essential in this position.

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Science Data Processing Branch (Code 587)	GB	AR/VR Developer	Science Data Processing	Computer Engineering	Computer Science	Electrical Engineering	The Science Data Processing Branch is seeking applicants with experience or interest in developing virtual reality (VR) and/or augmented reality (AR) applications. They will be joining the Code 587 VR/AR Development Team in developing cutting-edge AR and VR applications for NASA science and engineering domains. They will be developing with either Unity and C# or Unreal Engine and Blueprints/C++. Previous AR/VR development in either of these integrated development environments is necessary. The ideal candidate would also have 2D/3D content creation experience in such programs as Blender, Maya, and Photoshop. The candidate must be able to work well with teams and be flexible and eager to learn to handle the constantly changing AR/VR development landscape.
Science Data Processing Branch (Code 587)	GB	Junior Software Developer	Science Data Processing	Computer Science	Computer Engineering		The CCMC is seeking a Junior Software Engineer for the Science Data Software Branch to work on the design and development of complex software systems with an emphasis on high-performance computing, web development, cloud computing, and enterprise database applications.
Instrument/Payload Systems Engineering Branch (Code 592)	GB	Orbital Debris Systems Engineer	Systems Engineering	Engineering	Physics		Support development of the Orbital Debris Assessment Report (ODAR) and the End of Mission Plan (EOMP) for NASA missions on behalf of their corresponding Project Manager.
Navigtation & Mission Design Branch (Code 595)	GB	Navigation Engineer	Communication Systems Navigation Engineer	Aerospace Engineer	Electrical Engineering	Computer Engineering	Work within a specialized field of navigation and trajectory design which includes leading edge research and development in optical navigation, on-board autonomous navigation, guidance and control, optimization theory and multi-body dynamic
Components & Hardware Systems Branch (Code 596)	GB	GN&C Technology Engineer	Analog and Mixed Signal Electronics Engineer	Electrical	Electronics		The scope of technical disciplines encompassed by the branch include participation in all MESA sensor and actuator engineering activities. These activities include conducting market surveys, convert RF signals to digital signals, making sensor and actuator build/buy decisions, procuring and designing sensors and actuators, along with providing their associated ground support equipment. Also included is the development of advanced sensors and actuators, hardware systems such as Guidance Navigation and Control unique electronics and dynamic simulators, and supporting integration, test, and validation of these components. The Branch also provides, maintains, and manages the component test facilities for both conventional and advanced components to validate their performance while also providing and maintaining an inventory of components.