

# Career Paths

## Research Programmers

Title	Assistant Research Programmer	Research Programmer	Senior Research Programmer	Lead Research Programmer	Principal Research Programmer
Major Function	Develop software and tools to address scientific and other real world problems Lead development activities and oversee/mentor groups of developers as a "player coach"				
Key Responsibilities	<p>Develop novel software or contribute to existing software, both independently and/or in collaboration with team members, in support of a project's goals</p> <p>Interact with people in a wide range of educational, scientific, and engineering disciplines to create advanced software</p> <p>Represent the group at meetings, give presentations at conferences or other venues, and contribute to publications and grant proposals</p> <p>Carry development and contribute significantly towards the reporting on one or more projects</p> <p>Track technologies changes/research activity in relevant fields</p> <p>Evaluate the strengths and weaknesses between varieties of novel approaches to problems and communicate these to colleagues</p> <p>Design new approaches and techniques in resolving project specific problems using independent judgement</p> <p>Oversee and develop on a number of projects: assist in ensuring deliverables/deadlines are met, contribute to proposals, and teach others</p> <p>Lead and assume responsibility for activities of a project's development team/sub-team, ensure team/project goals and deadlines are met</p> <p>Oversee/steward design and development of several significant software code bases</p> <p>Steward funded projects</p> <p>Leading the building, maintaining, and growth of a broad active and sustainable community around one or more codebases</p> <p>Unwavering conflict resolution towards maintaining teams/efforts</p> <p>Establishing non-grant funded sources for one or more codebases (e.g. service cost models, industry partnerships)</p>				
Decision Making Authority	Project developers and students				
Supervision	Senior/Lead/Principal Research Programmer, Group/Division Leads, Project Leads			Group/Division Leads, Project Leads	
Required Education, Training, and Experience	BA/BS in computer science. Alternative degree fields will be considered/accepted if accompanied by equivalent experience				
	Some course level soft. dev. Experience	1-3 years software development experience	5+ years software development experience	10+ years software development experience	Demonstrated ability to create/lead sub-teams
Preferred Experience	<p>Knowledge of programming, ability to follow research publications, an ability to write, and an ability to be creative towards open ended software development</p> <p>Subject matter experts on one or more technologies</p> <p>Ability to establish a software development effort from the ground up (create software from scratch)</p> <p>Programming in one or more programming languages (e.g. Java, C++, Python, Scala, FORTRAN, Ruby, Javascript)</p> <p>Proficient in 3 or more programming languages with an ability to explain/decide why one would be utilized over another</p> <p>Web development (e.g. Server side scripting, client side frameworks, HTML5, CSS, REST)</p> <p>Databases (e.g. MySQL, MongoDB, PostgreSQL)</p> <p>Contributions towards research publications</p> <p>Experience in one or more of the following: Machine learning or data mining, Natural language processing, Geospatial data management and programming, Computer vision or graphics, HPC environments, cloud computing, and/or systems administration</p>				

## Research Scientists

Under Development