

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				
Key Responsibilities	Lead development activities and oversee/mentor groups of developers as a "player coach"				
	Develop novel software or contribute to existing software, both independently and/or in collaboration with team members, in support of a project's goals				
	Interact with people in a wide range of educational, scientific, and engineering disciplines to create advanced software				
	Represent the group at meetings, give presentations at conferences or other venues, and contribute to publications and grant proposals				
	Carry development and contribute significantly towards the reporting on one or more projects				
	Track technologies changes/research activity in relevant fields				
	Evaluate the strengths and weaknesses between varieties of novel approaches to problems and communicate these to colleagues				
	Design new approaches and techniques in resolving project specific problems using independent judgement				
	Oversee and develop on a number of projects: assist in ensuring deliverables/deadlines are met, contribute to proposals, and teach others				
	Lead and assume responsibility for activities of a project's development team/sub-team, ensure team/project goals and deadlines are met				
Oversee/steward design and development of several significant software code bases					
Steward funded projects					
Leading the building, maintaining, and growth of a broad active and sustainable community around one or more codebases					
Unwavering conflict resolution towards maintaining teams/efforts					
Establishing non-grant funded sources for one or more codebases (e.g. service cost models, industry partnerships)					
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	
Preferred Experience	Demonstrated ability to create/lead sub-teams				
	Knowledge of programming, ability to follow research publications, an ability to write, and an ability to be creative towards open ended software development				
			Subject matter experts on one or more technologies		
	Ability to establish a software development effort from the ground up (create software from scratch)				
	Programming in one or more programming languages (e.g. Java, C++, Python, Scala, FORTRAN, Ruby, Javascript)				
	Proficient in 3 or more programming languages with an ability to explain/decide why one would be utilized over another				
	Web development (e.g. Server side scripting, client side frameworks, HTML5, CSS, REST)				
Databases (e.g. MySQL, MongoDB, PostgreSQL)					
Contributions towards research publications					
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					

Research Scientists

Under Development