Senior Research Software Engineer - Illinois Natural History Survey/PRI

HEJ higheredjobs.com/search/details.cfm



Senior Research Software Engineer
Illinois Natural History Survey
Prairie Research Institute
University of Illinois Urbana-Champaign

Illinois is a world leader in research, teaching, and public engagement. We serve the state, the nation, and the world by creating knowledge, preparing students for lives of impact, and addressing critical societal needs through the transfer and application of knowledge. Illinois is the place where we embrace differences. We embrace it because we value it. Illinois is especially interested in candidates who can contribute, through their research, teaching, and/or service, to the excellence of the Illinois community by fostering an environment that values and supports people of all backgrounds and experiences.

The Prairie Research Institute (PRI), a research and service institute of the University of Illinois at Urbana-Champaign, centrally located between Chicago, St. Louis, and Indianapolis, houses five State Scientific Surveys covering a wide range of expertise including biology, water resources, climate, geology, sustainable technology, and archaeology. PRI's mission is to provide objective, integrated scientific research and service that allow citizens and decision-makers to make choices that ensure sustainable economic development, enduring environmental quality, and cultural resource preservation for the people, businesses, and across Illinois, the nation, and the world. Learn more at https://go.illinois.edu/PRIjobs.

The **Illinois Natural History Survey**, one of the five State Scientific Surveys housed by the Prairie Research Institute, is seeking a **Senior Research Software Engineer** who will collaborate with a team of developers and community support personnel to refine, enhance, and innovatively advance the core functionality of TaxonWorks and its surrounding software architectures through new contributions, integrations, and informational tools developed by the Species File Group and its collaborators.

This position offers the opportunity for Workplace Flexibility as defined per the University's Workplace Flexibility policy. Remote and Hybrid work decisions will be made on a case-by-case basis, considering the University's mission and business needs, as well as those of the respective units.

As a Senior Research Software Engineer you will:

- Design, develop, and maintain robust, reusable software components and tools that support taxonomic science and biodiversity informatics.
- Prototype, mock, or stub front-end elements in Vue.js that integrate with middle- and back-end systems, ensuring designs are evolvable by UI/UX specialists.
- Use feedback from Continuous Integration (CI) processes and reports to guide development, testing, and refinement.
- Contribute to application performance and extensibility by integrating script-based code with compiled languages (e.g., Rust, C, C++).
- Monitor and evaluate emerging technologies, research trends, and best practices relevant to software development and biodiversity informatics.
- Assess strengths and limitations of novel technical approaches and clearly communicate findings and recommendations to collaborators.
- Support and curate software, documentation, and emerging AI-based tools to better serve biodiversity informatics researchers across biological domains (e.g., ecology, evolution, taxonomy, natural history collections).
- Develop and maintain long-term resources and meta-tools (e.g., AI agents, pipelines, toolchains) that facilitate community contributions while improving code quality, security, and semantic validity.
- Build and apply domain-specific knowledge in taxonomy and biodiversity science to inform the design and modeling of large-scale, integrative software architectures that address complex and heterogeneous biodiversity data.

- Perform other duties as needed to further the mission and goals of the Survey, PRI, and the University of Illinois.
- Remain current with developments in software engineering, biodiversity informatics, and related disciplines.

Minimum Qualifications
Master's
degree in computer science, Software Engineering,
Mathematics, or a closely related field. Alternate degree fields may be
considered depending on the nature and depth of experience as it relates to
this role. A minimum of two (2) years of
experience in Ruby/Rails software development, programming, and demonstrated
experience
with Rails v8. Experience using automated
testing frameworks in a production software environment. A
minimum of three (3) years of experience addressing biodiversity informatics
challenges, particularly those involving species-level metadata.

Preferred Qualifications
Field or laboratory experience in conservation biology,
species assessment, monitoring and identification, or evolutionary biology and
species description.

Knowledge, Skills, and Abilities

- Demonstrated ability to work independently by selecting, prioritizing, and resolving tasks from user- and developer-generated issue trackers.
- Ability to determine appropriate placement of functionality across front-end, middle-tier, and back-end layers and to articulate the rationale for those decisions.
- Strong written and verbal communication skills, including the ability to clarify and refine feature requirements through issue trackers, chat platforms, email, and meetings.
- Experience working effectively within hybrid and collaborative development teams.
- Knowledge of academic publishing workflows, including technical preparation and automation using tools such as LaTeX, Pandoc, and Markdown extensions.
- Ability to design, document, and maintain JSON-based APIs serving broad application domains (e.g., Swagger/OpenAPI).
- Experience exploring and documenting integrations between core applications and cloud-based services (e.g., authentication systems, LLM access, geospatial computation, analytics engines).
- Ability to reverse-engineer legacy binaries to extract embedded data when required.
- Strong interpersonal, organizational, collaboration, and leadership skills.
- Demonstrated effectiveness in fast-paced, deadline-driven environments with shifting priorities and minimal supervision.

- High attention to detail, sound judgment, and effective conflict-resolution skills.
- Proficiency with commonly used software tools and database systems.
- Intermediate to advanced understanding of biodiversity informatics concepts, particularly as they relate to taxonomy and natural history collections.

Environmental Demands

This position is based in an office environment. The work is primarily sedentary and requires prolonged periods of sitting, working at a computer, and using a keyboard and mouse with repetitive hand motions.

Appointment Information

This is a 100% full-time Academic Professional position, appointed on a 12-month basis, renewable annually based upon satisfactory progress in the position and continuation of funding. The start date is negotiable, and the budgeted salary range for this position is $75,000 - $85,000. The salary is competitive and commensurate with qualifications and experience, while also considering internal equity. It is not typical for an individual to be offered a salary at or near the top of the full range for a position.

Application Procedures & Deadline Information

Applications must be received by 6:00 pm (Central Time) on **Friday, February 6th, 2026**. Apply for this position using the Apply Now button at the top or bottom of this posting. Applications not submitted through https://jobs.illinois.edu will not be considered. Application materials must include a 1) cover letter that clearly outlines your qualifications and experience as it relates to this position, 2) a CV or resume, and 3) names and contact information (including email addresses) for three professional references. Incomplete applications will not be considered. For further information about this specific position, please contact **Matt Yoder at mjyoder@illinois.edu**. For questions regarding the application process, please contact 217-333-2137.

At the University of Illinois Urbana-Champaign - the state's flagship public university and one of the world's leading research institutions - **every staff member helps shape what's next**. Founded in 1867, Illinois is home to a vibrant community of 59,000 students from all 50 states and 129 countries, supported by 15 colleges and instructional units, more than 20 research institutes, and one of the most comprehensive student service ecosystems in the nation. Whether you're empowering first-generation students, fueling breakthrough innovation, or strengthening communities across Illinois and beyond, your work here has a far-reaching and deeply meaningful impact. The university offers a highly competitive benefits package designed to support your well-being, growth, and financial security. Join a

top 10 public university that has launched over 330 startups and continues to redefine excellence - where the Illinois Value Proposition ensures that your contributions are recognized, your potential is nurtured, and your career can thrive.

Champaign-Urbana

Artificial Intelligence (AI) tools may be used in some portions of the candidate review process for this position; however, all employment decisions will be made by a person.

This position is intended to be eligible for benefits. This includes Health, Dental, Vision, Life Insurance, a Retirement Plan, Paid time Off, and Tuition waivers for employees and dependents.

The University of Illinois System is an equal opportunity employer, including but not limited to disability and/or veteran status, and complies with all applicable state and federal employment mandates. Please visit Required Employment Notices and Posters to view our non-discrimination statement and find additional information about required background checks, sexual harassment/misconduct disclosures, and employment eligibility review through E-Verify.

Applicants with disabilities are encouraged to apply and may request a reasonable accommodation under the Americans with Disabilities Act (2008) to complete the application and/or interview process. Accommodations may also be requested on the basis of pregnancy, childbirth, and related conditions, or religion. Requests may be submitted through the reasonable accommodations portal, or by contacting the Accessibility & Accommodations Division of the Office for Access and Equity at 217-333-0885, or by emailing accessibility@illinois.edu.

Requisition ID: 1034528

Job Category: Research

Apply at:https://jobs.illinois.edu
The University of Illinois is an Equal Opportunity/Affirmative Action Employer. The administration, faculty and staff embrace diversity and are committed to attracting qualified candidates who also embrace and value diversity and inclusivity.