

Research Question Examples: Computer Science

About this document

This PDF contains 56 **computer science research question examples**, each quoted word for word from one of 21 completed dissertations and theses (2014–2026), grouped into 5 sections. Each question links to the thesis that asked it, so you can read how it was answered. Use them to see what a well-formed computer science research question looks like, then adapt the shape to your own study.

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Descriptive questions

These questions ask what is happening: how much, how often, or what kinds. They describe a situation rather than explain it.

1. Which parameters can affect the rendering of the user interface on a mobile application?

Asked in: [A comparison between native, hybrid and web applications : A study of the applications performance differences in the user interface.](#) · Dahlquist, Victoria · Jönköping University · 2018

2. Is it possible to detect the misuse of graphics libraries at compile-time?

Asked in: [A System for Efficient Large Scale Scenes Rendering](#) · Jinyuan Yang · University College Dublin · 2025

3. Is there a way to avoid spending effort on scheduling the heterogeneous hardware?

Asked in: [A System for Efficient Large Scale Scenes Rendering](#) · Jinyuan Yang · University College Dublin · 2025

4. Is there a way to generate accurate shapes of multiple detail levels?

Asked in: [A System for Efficient Large Scale Scenes Rendering](#) · Jinyuan Yang · University College Dublin · 2025

5. Is it feasible to deploy standard Web services on IoT systems without using application layer gateways?

Asked in: [Efficient Web Services for End-To-End Interoperability of Embedded Systems](#) · Kyusakov, Rumen · Luleå University of Technology · 2014

6. What are the trade-offs in using Web services for end-to-end interoperability of resource-constrained embedded systems?

Asked in: [Efficient Web Services for End-To-End Interoperability of Embedded Systems](#) · Kyusakov, Rumen · Luleå University of Technology · 2014

7. What levels of efficiency and functionality can be achieved using binary coding schemes for XML data exchange?

Asked in: [Efficient Web Services for End-To-End Interoperability of Embedded Systems](#) · Kyusakov, Rumen · Luleå University of Technology · 2014

8. What are all of the public software projects / repositories on GitHub with some nexus, even a weak one, to the major research universities in the United States?

Asked in: [Empirical Quantitative Analyses of Research Software Engineering Projects in Scientific Computing.](#) · Schwartz, Samuel · University of Oregon · 2024

9. Of these software projects with some sort of nexus to a research university, which ones are [Research Software Engineering] projects?

Asked in: [Empirical Quantitative Analyses of Research Software Engineering Projects in Scientific Computing.](#) · Schwartz, Samuel · University of Oregon · 2024

10. What are the properties, characteristics, and varieties of software projects with a nexus to these research institutions?

Asked in: [Empirical Quantitative Analyses of Research Software Engineering Projects in Scientific Computing.](#) · Schwartz, Samuel · University of Oregon · 2024

11. What is the combinatorial coverage achieved by tests manually created by experienced engineers in industry?

Asked in: [Measuring Combinatorial Coverage of Manual Testing](#) · Fifo, Miraldi · Mälardalen University · 2018

12. What trade-offs between energy efficiency and other software quality aspects emerge in GitHub pull request discussions?

Asked in: [Mining Energy-Related Trade-offs in GitHub Pull Requests Through Product Quality Classification](#) · Wickramasinghe, Dona Harshani Kokila · Uppsala University · 2026

13. What are the [clinical practice guideline] change requirements for modelling an evolving [computer-interpretable guideline]?

Asked in: [Modelling evolving clinical practice guidelines: a case of Malawi](#) · Msosa, Yamiko Joseph · University of Cape Town · 2018

14. Can a model-driven engineering approach adequately support the modelling of an evolving [computer-interpretable guideline]?

Asked in: [Modelling evolving clinical practice guidelines: a case of Malawi](#) · Msosa, Yamiko Joseph · University of Cape Town · 2018

15. What are the testability issues of client-side JavaScript and Standard ML?

Asked in: [Rationales and Approaches for Automated Testing of JavaScript and Standard ML](#) · Wall, Emil · Uppsala University · 2014

16. Which considerations need to be made in order to write stable and maintainable tests?

Asked in: [Rationales and Approaches for Automated Testing of JavaScript and Standard ML](#) · Wall, Emil · Uppsala University · 2014

17. How often do AI coding agents modify dependencies in real software repositories?

Asked in: [Rethinking Software Supply Chains in the Age of Generative Systems: A Case Study of Use-Case-Oriented Regeneration](#) · Tanmay Singla · Purdue University · 2026

18. How long does it take to develop and execute unit proofs?

Asked in: [Systematic and Scalable Memory Safety Assurance for Embedded Software Systems](#) · Paschal Chukwuebuka Amusuo · Purdue University · 2026

19. What kind of [Mixed Reality] system can deliver virtual stereoscopic content for both on-site and remote theoretical teaching scenarios?

Asked in: [The Application and Evaluation of Interactive Mixed Reality for Assisting Veterinary Curricula in Training and Assessments](#) · Xuanhui Xu · University College Dublin · 2023

20. What type of [Mixed Reality] system can provide virtual stereoscopic content and active learning methods that support on-site practical teaching conditions?

Asked in: [The Application and Evaluation of Interactive Mixed Reality for Assisting Veterinary Curricula in Training and Assessments](#) · Xuanhui Xu · University College Dublin · 2023

21. What is the current technology used for providing computing resources in the labs and classrooms at [Naval Postgraduate School]?

Asked in: [The next generation of lab and classroom computing--the silver lining](#) · Milan Vukceovich · Naval Postgraduate School · 2016

22. What viable options are available to provide the same level of computing capabilities in the [learning and resource centers] at [Naval Postgraduate School]?

Asked in: [The next generation of lab and classroom computing--the silver lining](#) · Milan Vukcevic · Naval Postgraduate School · 2016

23. Which characteristics of architectural patterns make them suitable for the cloud environment?

Asked in: [Towards cloud application architectural patterns: transfer, evolution, innovation and oblivion](#) · Dimitrov, Dimitar · Jönköping University · 2015

24. To what extent do state-of-the-art discovery algorithms need to be amended to properly handle [Virtual Research Environments] across Hybrid Data Infrastructures?

Asked in: [Transactional REST Information System for Federated Research Infrastructures enabling Virtual Research Environments](#) · Frosini L · National Research Council of Italy · 2019

25. What are the primary use cases and practical applications that drive the adoption of GraphQL in conjunction with graph databases?

Asked in: [Usando GraphQL com base de dados em grafo](#) · Tiago Filipe Nascimento Barbosa · Polytechnic Institute of Porto · 2024

26. What are some of the most appropriate technologies when integrating GraphQL with graph databases?

Asked in: [Usando GraphQL com base de dados em grafo](#) · Tiago Filipe Nascimento Barbosa · Polytechnic Institute of Porto · 2024

27. What are the principal challenges and considerations encountered influencing their adoption and successful implementation?

Asked in: [Usando GraphQL com base de dados em grafo](#) · Tiago Filipe Nascimento Barbosa · Polytechnic Institute of Porto · 2024

Comparative questions

These questions compare two or more groups or settings, such as two schools or two teaching methods, to see whether they differ.

28. How does the rendering of the user interface differ from web application, hybrid application and native application?

Asked in: [A comparison between native, hybrid and web applications : A study of the applications performance differences in the user interface.](#) · Dahlquist, Victoria · Jönköping University · 2018

29. How does Timed Base Choice tests compare to Base Choice tests in terms of decision coverage?

Asked in: [A Study on Timed Base Choice Criteria for Testing Embedded Software](#) · Henning Bergström · Mälardalen University · 2016

30. To what extent does a sensor glove add value in measuring computer anxiety during usability testing when compared to anxiety questionnaires and observations?

Asked in: [Comparing the sensor glove and questionnaire as measures of computer anxiety](#) · Tlholohelo Stephanie Nkalai · University of the Free State · 2014

31. How do the characteristics of repositories in the university ecosystem compare with the characteristics of repositories in the national laboratory ecosystem?

Asked in: [Empirical Quantitative Analyses of Research Software Engineering Projects in Scientific Computing](#) · Schwartz, Samuel · University of Oregon · 2024

32. How do energy-related trade-offs and associated ISO/IEC 25010 quality characteristics vary across different software contexts, such as system layers, programming languages, and time?

Asked in: [Mining Energy-Related Trade-offs in GitHub Pull Requests Through Product Quality Classification](#) · Wickramasinghe, Dona Harshani Kokila · Uppsala University · 2026

33. What is the effect of modelling an evolving CIG using FCIG in comparison with the HL7 standard for modelling CIGs?

Asked in: [Modelling evolving clinical practice guidelines: a case of Malawi](#) · Yamiko Joseph Msosa · University of Cape Town · 2018

34. What kinds of dependency changes do AI coding agents make, and how do those changes compare with human-authored pull requests?

Asked in: [Rethinking Software Supply Chains in the Age of Generative Systems: A Case Study of Use-Case-Oriented Regeneration](#) · Tanmay Singla · Purdue University · 2026

35. How do generated implementations compare with the original dependency in terms of size and dependency footprint?

Asked in: [Rethinking Software Supply Chains in the Age of Generative Systems: A Case Study of Use-Case-Oriented Regeneration](#) · Tanmay Singla · Purdue University · 2026

36. How do [Mixed Reality] simulated examinations affect students' performance and emotional states compared to conventional summative assessments like Multiple Choice Questions?

Asked in: [The Application and Evaluation of Interactive Mixed Reality for Assisting Veterinary Curricula in Training and Assessments](#) · Xuanhui Xu · University College Dublin · 2023

37. For the viable options, does a cost comparison show which solution would be preferable for the current labs and classrooms at [Naval Postgraduate School]?

Asked in: [The next generation of lab and classroom computing--the silver lining](#) · Milan Vukcevic · Naval Postgraduate School · 2016

Exploratory questions

These questions ask how or why something happens, usually where little research exists yet. They are common in qualitative studies built on interviews or observation.

38. How to avoid writing the verbose code of graphics libraries?

Asked in: [A System for Efficient Large Scale Scenes Rendering](#) · Jinyuan Yang · University College Dublin · 2025

39. How to overcome the massive overdraw issue of large scale scenes rendering?

Asked in: [A System for Efficient Large Scale Scenes Rendering](#) · Jinyuan Yang · University College Dublin · 2025

40. How can ontologies be used to represent the accessibility needs and preferences of learners in [OpenCourseWare]?

Asked in: [Adapting OpenCourseWare Based on the Needs and Preferences of Disabled Learners](#) · Mirette Magdy Michel Elias · University of Bonn · 2022

41. How to include these accessibility needs in the design and implementation of [OpenCourseWare] platform and [Open Educational Resource]?

Asked in: [Adapting OpenCourseWare Based on the Needs and Preferences of Disabled Learners](#) · Mirette Magdy Michel Elias · University of Bonn · 2022

42. How does testing culture affect productivity and quality of software?

Asked in: [Rationales and Approaches for Automated Testing of JavaScript and Standard ML](#) · Wall, Emil · Uppsala University · 2014

43. How does the existing knowledge on architectural patterns relate to the cloud computing environment?

Asked in: [Towards cloud application architectural patterns: transfer, evolution, innovation and oblivion](#) · Dimitrov, Dimitar · Jönköping University · 2015

44. How can architectural pattern evolution be documented effectively for usage in the practice?

Asked in: [Towards cloud application architectural patterns: transfer, evolution, innovation and oblivion](#) · Dimitrov, Dimitar · Jönköping University · 2015

45. Is it possible to formalise a uniform resource model to seamlessly federate research infrastructures?

Asked in: [Transactional REST Information System for Federated Research Infrastructures enabling Virtual Research Environments](#) · Frosini L · Consiglio Nazionale delle Ricerche · 2019

46. How could an integrated framework concept for project management support the collaboration in virtual teams in a unified way?

Asked in: [Unified support of project management and virtual teams in medium-sized IT projects: a practical concept and a prototype](#) · Iris Siegl · TU Wien · 2015

47. How can the feasibility of the framework concept be addressed by a solution prototype?

Asked in: [Unified support of project management and virtual teams in medium-sized IT projects: a practical concept and a prototype](#) · Iris Siegl · TU Wien · 2015

Causal questions

These questions ask *whether one thing causes a change in another*. Answering them usually takes an experiment or a careful design that rules out other explanations.

48. Can the effectiveness of manually created tests be improved in terms of combinatorial coverage using combinatorial testing?

Asked in: [Measuring Combinatorial Coverage of Manual Testing](#) · Fifo, Miraldi · Mälardalen University · 2018

49. Does a systematic unit proofing approach enable detection of memory safety defects?

Asked in: [Systematic and Scalable Memory Safety Assurance for Embedded Software Systems](#) · Paschal Chukwuebuka Amusuo · Purdue University · 2026

50. To what extent does each component in AssortS contribute to its effectiveness?

Asked in: [Understanding and Mitigating Hallucination of Language Models in Software Engineering](#) · Bonan Kou · Purdue University · 2026

51. What is the impact of API popularity on the effectiveness of AutoDoc?

Asked in: [Understanding and Mitigating Hallucination of Language Models in Software Engineering](#) · Bonan Kou · Purdue University · 2026

52. To what extent does each component contribute to the effectiveness of AutoDoc?

Asked in: [Understanding and Mitigating Hallucination of Language Models in Software Engineering](#) · Bonan Kou · Purdue University · 2026

53. What is the impact of temperature setting on the effectiveness of AutoDoc?

Asked in: [Understanding and Mitigating Hallucination of Language Models in Software Engineering](#) · Bonan Kou · Purdue University · 2026

Relational questions

These questions ask whether two things tend to go together, such as study time and exam results, without claiming that one causes the other.

54. To what extent is computer anxiety influenced by age, gender, computer experience, educational attainment, and ownership of a personal computer according to the anxiety questionnaire and the sensor glove?

Asked in: [Comparing the sensor glove and questionnaire as measures of computer anxiety](#) · Tlholohelo Stephania Nkalai · University of the Free State · 2014

55. To what extent do static evaluation criteria, align with human perceptual judgments of scene in dynamic interactive environments?

Asked in: [Contemplation or Action: Rethinking the Evaluation of 3D Scene Through Dynamic Game Interaction](#) · Liu, Dawei · Uppsala University · 2026

56. How are the identified trade-offs associated with ISO/IEC 25010 product quality characteristics and (sub-)characteristics?

Asked in: [Mining Energy-Related Trade-offs in GitHub Pull Requests Through Product Quality Classification](#) · Wickramasinghe, Dona Harshani Kokila · Uppsala University · 2026

How to adapt a question to your own study

Every question here was asked by someone else, about their own setting. These four steps turn one into a question that is yours.

- 1. Pick the shape, not the wording.** Notice whether the question compares, explores, explains or measures. That shape is what transfers to your study.
Recommended reading: [How to write a research question](#)
- 2. Swap in your own population and setting.** Change who, where and when, and check the question still makes sense.
Recommended reading: [How to find a research gap](#)
- 3. Check it fits your method.** A "how" or "why" question usually points to qualitative work; "how much" or "is there a relationship" to quantitative.
Recommended reading: [Qualitative vs quantitative research](#)
- 4. Line up your aims, objectives and questions.** Your committee will check that they agree.
Recommended reading: [Research aims, objectives and questions](#)

Do this with two or three questions and compare them: the one you can actually answer with the time and access you have is usually the right one.