

Reflections on the Influence of 'Mica: A Programming Terminology Aid'

10-year Most Influential Paper award talk

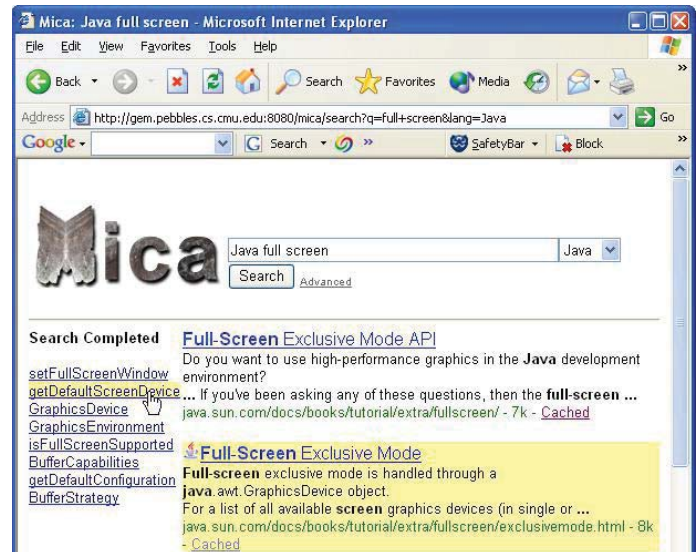
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Extended Abstract—Our paper on “Mica” from the 2006 IEEE Symposium on Visual Languages and Human-Centric Computing, VL/HCC'06 [1] presented a prototype tool that helped programmers use a description of desired functionality to find specific relevant API classes and methods. Mica worked by using the Google Web APIs to find pages relating to a given query, and then using a list of known API classes and methods to recognize and aggregate the API-relevant words contained in the result pages. Mica used weighted word frequencies to find the API-relevant words correlated with the search and displayed the most relevant words alongside regular web search results. We had observed that when programmers create new software or add functionality to existing software, a common and often difficult task is that of using libraries, toolkits and SDKs to achieve the desired functionality. Internet search engines, in particular Google, have emerged as new and effective tools for this task, providing quick access to a large collection of tutorials and example code. However, our observations of how programmers used these resources revealed problems and inefficiencies in their use as programming tools. Mica was the first of long series of tools that we built as part of the “Natural Programming Project” [2] to help programmers more easily use APIs. We speculate that the impact of the Mica paper is because:

- The problem of helping users find and use the right API from a growing number of available options has become increasingly relevant.
- The data that comes from other developers' experience, found and ranked through web search, continues to be an invaluable starting point for finding and figuring out how to use APIs.
- The strategy of extracting and displaying relevant information alongside Google search results has proven effective. Since Mica came out Google and Bing have started to support this pattern for movies, people, events, and many other pieces of information, although not yet APIs.
- That sweet logo!

Keywords— *Programming help systems, search, Google, examples, Natural Programming*



SHORT BIOS

Jeffrey Stylos is a software engineer at IBM working on API design for Watson. He worked on Mica as part of his PhD dissertation at CMU. Prior to IBM he worked for Microsoft studying API usability, and hiked the Appalachian, Pacific Crest and Continental Divide trails.

Brad A. Myers is a Professor in the Human-Computer Interaction Institute in the School of Computer Science at Carnegie Mellon University. This is his 4th Most Influential Paper Award from the VL/HCC conferences. He received the ACM SIGCHI Lifetime Achievement Award in Research in 2017. Myers received a PhD in computer science at the University of Toronto, and MS and BSc degrees from the Massachusetts Institute of Technology during which time he was a research intern at Xerox PARC. From 1980 until 1983, he worked at PERQ Systems Corporation.

REFERENCES

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- [2] B. A. Myers and J. Stylos, "Improving API Usability," *Comm. ACM*, vol. 59, pp. 62-69, July 2016.