

Putting Software Testing Terminology to the Test

M.A.Sc. Seminar

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- Drasil
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Drasil

What is Drasil?

My project was originally focused on Drasil, "a framework for generating all of the software artifacts from a stable knowledge base, focusing currently on scientific software" [Hunt et al., 2021]



Drasil's Logo [Carette et al., 2021]

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- I worked on Drasil as an Undergraduate Summer Research Assistant during the summers of 2018 and 2019



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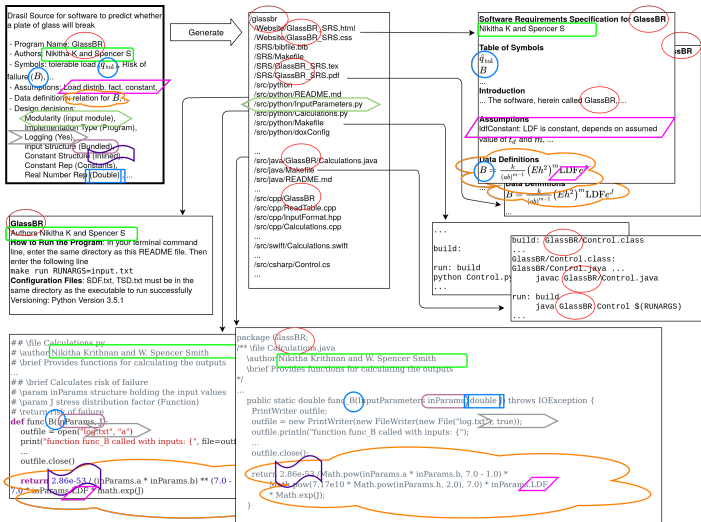
- I worked on Drasil as an Undergraduate Summer Research Assistant during the summers of 2018 and 2019
- “Recipes” specify how information from the knowledge based is used to generate software artifacts, including:
 - SRS (HTML, PDF, Markdown)
 - Code (Python, Java, C#, C++, Swift, Julia)
 - READMEs and Makefiles
 - Drasil’s own website¹!



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Visualizing Drasil's Traceability



Knowledge flow from knowledge base to artifacts; by Dr. Spencer Smith

Generating Test Cases

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 - 3 Generate test cases!
- There was a big assumption in this plan that drastically changed my project

Overview of Progression Towards M.A.Sc.

Course-related progression

- I'm required to complete:
 - Two "Software" courses
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 - CAS 781: Advanced Topics in Computing and Software
(High-Performance Scientific Computing) - Winter 2023

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- Formed my supervisory committee; we are currently having our first supervisory committee meeting!

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 - 3 Gives Drasil another "bragging point"!

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- 3 Testing provides a greater degree of confidence in Drasil's capabilities
- 4 Generating code for testing allows for it to be done "properly" instead of taking shortcuts commonly taken by humans

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"The information you have should be just as useful for generating tests as it should be for manually running them." — Dr. Jacques Carette

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- Test cases will then be written for:
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 - Projectile's implementation in other languages
 - Other examples where code is generated: GlassBR, NoPCM, DbIPendulum, PD Controller [Hunt et al., 2021]

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- These test cases will also be added to Drasil's CI/CD to ensure that future changes preserve the code's functionality

Acknowledgment

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- The past and current Drasil team have created a truly amazing framework!

Thank you!
Questions?

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-  Carette, J., Smith, S., Balaci, J., Wu, T.-Y., Crawford, S., Chen, D., Szymczak, D., MacLachlan, B., Scime, D., and Niazi, M. (2021). Drasil.
-  Hunt, A., Michalski, P., Chen, D., Balaci, J., and Smith, S. (2021). Drasil - Generate All the Things!