

First Committee Meeting

Progress Report

Jason Balaci

McMaster University

Oct. 21st, 2021

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2 Project

- Drasil
- Goal #1: Typed Expression Language
- Goal #2: Model Discrimination – “ModelKinds”

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Who am I?

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Park, Fall 2019

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- I am **Jason Balaci**
- Graduate of *McMaster University*, holding...
 - Hons. Actuarial and Financial Mathematics (B.Sc.)
 - Minor in Computer Science
- Currently pursuing a thesis-based Master's of Computer Science (M.Sc) at *McMaster University*, under the supervision of **Dr. Jacques Carette**.



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Overview of Progression Towards C.S. M.Sc.

Course-related progression

- I'm required to complete¹²:

¹https://academiccalendars.romcmaster.ca/preview_program.php?catoid=45&poid=23470&returnto=9166

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- Together, the courses completed satisfies the "Courses Requirement" as mentioned in the academic calendar¹ and the "Regulations for the Computer Science M.Sc. Program" document².

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- Supervisory committee is formed, and we are currently having our first supervisory committee.
 - *Supervisor:* Dr. Jacques Carette
 - Dr. Spencer Smith
 - Dr. Wolfram Kahl

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What is Drasil?

Drasil...



Drasil's Logo

[Carette et al., 2021][Yggdrasil - Wikipedia, 2021]

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- has a website¹!



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- TODO: here!

Drasil Case Studies

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 - **Solar Water Heating System (SWHS)** - Modelling of a solar water heating system with phase change material, predicting temperatures and change in heat energy of water and the PCM over time.

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- *cont.d*¹:
 - **SWHS without Phase Change Material (NoPCM)** - Modelling of a solar water heating system without phase change material, predicting temperatures and change in heat energy of water and the PCM over time.

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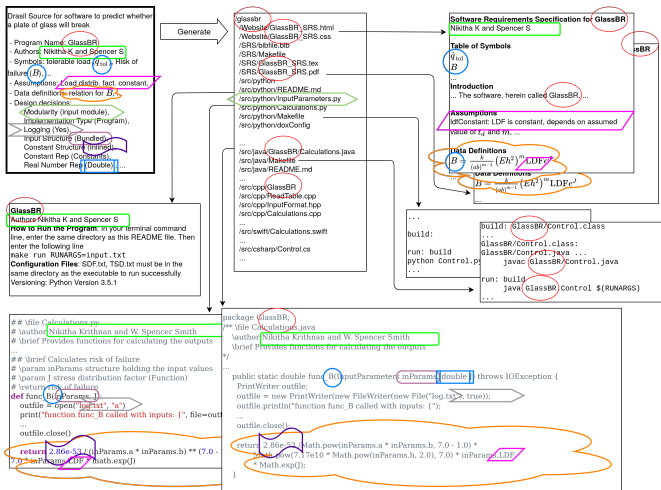
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The Drasil website is also generated by Drasil!

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Taking a closer look at one of the examples: GlassBR

GlassBR Generates Code!



Knowledge flow from “knowledge-base”/source to artifacts, by Dr. Spencer Smith

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A few, notable, blocking problems:

- Confidently generating usable software artifacts without strong type information places significant stress on developers, resulting in a higher likelihood of bugs in artifacts.
- Existing “theories”/“*Models”¹ don't expose enough information. They must be enriched.

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Acknowledgements

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Thank you!

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References I



Carette, J., Smith, S., Balaci, J., Hunt, A., Wu, T.-Y., Crawford, S., Chen, D., Szymczak, D., MacLachlan, B., Scime, D., and Niazi, M. (2021).

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Yggdrasil - Wikipedia (2021).

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