



COMP250: Artificial Intelligence
7: Procedural Content Generation



What is PCG?



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- ▶ **Procedural:** by computer program or algorithm, with little or no direct input from designer or user
- ▶ **Content:** levels, maps, art, animations, stories, items, quests, music, weapons, vehicles, characters, ...
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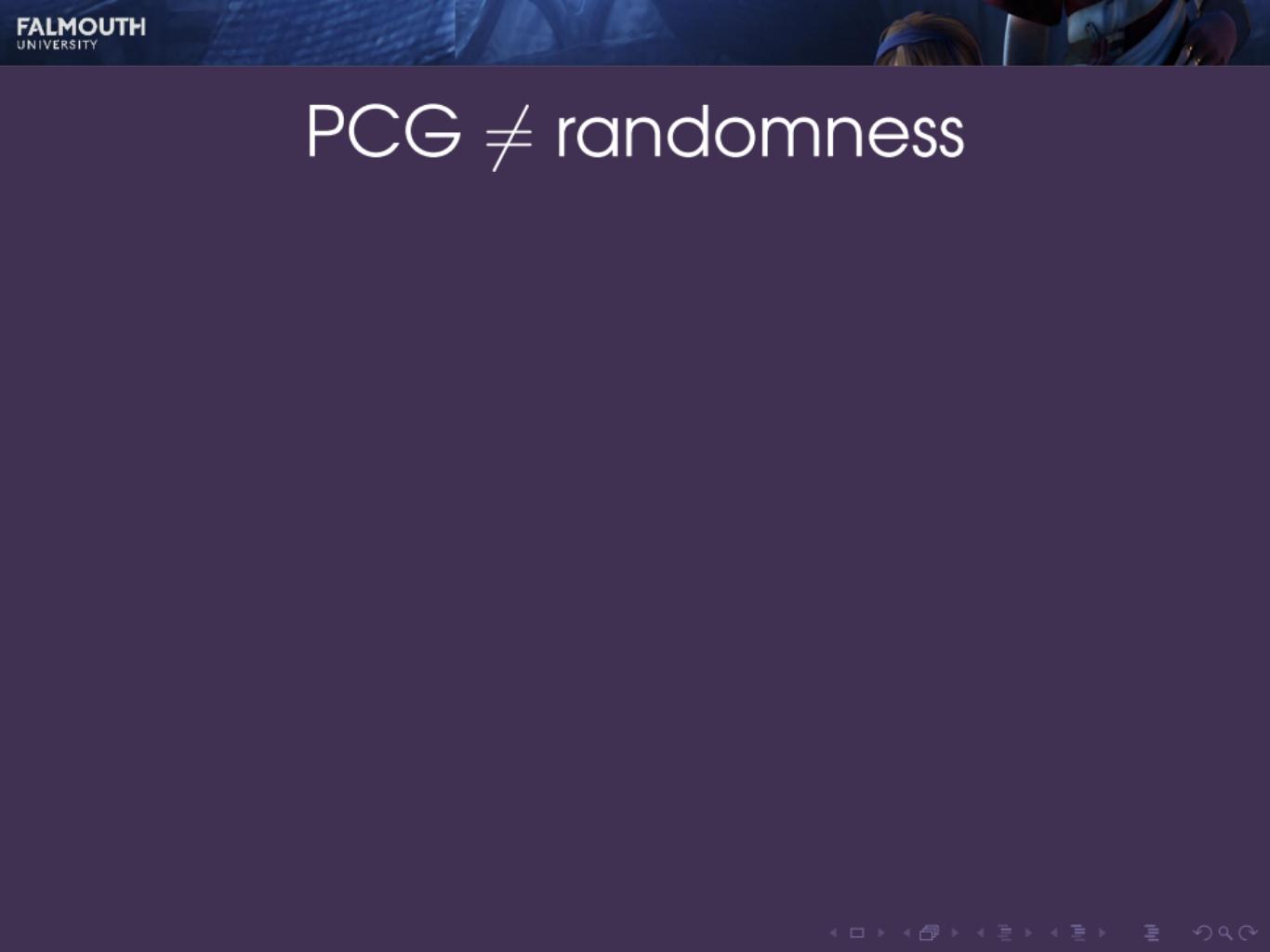
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Types of PCG

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 - ▶ Part of the game
- ▶ **Offline**
 - ▶ Generate content at design-time
 - ▶ Tool for developers



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- ▶ Can have PCG without randomness, e.g. based on fractals or simulations
- ▶ Randomness in PCG is generally **constrained** to produce desired content
- ▶ Shuffling a deck of cards for a game of Solitaire is **not** PCG!

Why PCG?

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- ▶ Allow game mechanics based on unseen content

Further reading

Noor Shaker, Julian Togelius and Mark J. Nelson.

Procedural Content Generation in Games: A textbook and an overview of current research. Springer, 2016.

Available online: <http://pcgbook.com>

The Binding of Isaac (2011)



Enter The Gungeon (2016)



Spelunky (2008)



Dwarf Fortress (2006)

No Man's Sky (2016)

