

A Game to Share the Story of LGBTQ+ Pioneers and Influential Computer Scientists

Karina Mochetti
UBC
Vancouver, Canada
mochetti@cs.ubc.ca

ABSTRACT

The lack of diversity in STEM (especially Computer Science) is an important issue to be addressed. Although a lot has been done regarding the gender gap, the same cannot be said for LGBTQ+ representation in the field. This work aims to handle this problem by creating a game that will help to share the story of influential computer scientists who are role models for this minority community within the Computer Science field.

CCS CONCEPTS

• **Social and professional topics** → *Computing education; Historical people; Sexual orientation;*

KEYWORDS

LGBTQ+ representation in CS, Diversity, Computing education

ACM Reference Format:

Karina Mochetti. 2024. A Game to Share the Story of LGBTQ+ Pioneers and Influential Computer Scientists. In *Proceedings of the 55th ACM Technical Symposium on Computer Science Education V. 2 (SIGCSE 2024)*, March 20–23, 2024, Portland, OR, USA. ACM, New York, NY, USA, Article 4, 2 pages. <https://doi.org/10.1145/3626253.3635491>

1 INTRODUCTION AND MOTIVATION

The gender gap problem found in STEM, more specifically in the Computer Science field [2, 10] has gathered a lot of attention in the past years. Although the gender gap is indeed an important issue within the area, other minorities, such as People of Color and LGBTQ+, also feel excluded by an environment dominated by (straight) white men [6, 8].

The goal of this work is to develop a game that would illustrate the importance of LGBTQ+ pioneers in the history of Computer Science and encourage people to share that information, highlighting an important minority within the Computer Science field.

Having role models is important for minority groups when choosing and staying in a career [1, 7]. Therefore, telling the story of influential computer scientists who are part of a minority community is an important step when trying to bring diversity and inclusion to the field.

The main inspiration for this work is the *Notable Women in Tech* cards project [4] created to preserve and share the history of women in computing. A deck of cards, containing a short biography about women in the field in which each card, was developed and disclosed.

Although not as extensively researched as the gender gap, the lack of LGBTQ+ representation in the Computer Science field also flows from the overrepresentation of (straight) white men in the field [5, 9]. Like other minority groups, such as women and People of Color, the LGBTQ+ community also suffers from discrimination within the field [3]. Therefore, the need to empower and engage new people from this community in Computer Science is essential and a first step to improving diversity within the field.

Our work's main goal is to create a game focusing on the biography of several LGBTQ+ members in computing. Aside from being part of the LGBTQ+ community, the people on these cards will also be diverse in their countries of origin, generations, topics, and contributions to Computer Science.

2 METHODOLOGY

The game's prototype was developed as a paper-based game. It has two decks of cards, one deck with profile cards and one deck with fact cards. Each player will receive a profile card with a short biography of an LGBTQ+ pioneer in Computer Science, as seen in Figure 1. After reading the profile, the player introduces the name of their pioneer and at each turn, one of the players draws a card from the fact card deck, such as the one seen in Figure 2, and shows it to all players. Each fact card has a small fact that can be found on each profile card, like where that person was born, or which contributions they added to the field. Every player with a profile card that matches the fact drawn will receive the number of points listed on the fact card. For example, if the fact card says *They were born in North America* and *03 points*, everyone who has a profile card with a North American pioneer should raise their hand, say their name, and receive 3 rainbow points. The game ends when a player gets a total of 10 rainbow points. That player is the winner.

The paper-based prototype is ready, but only one copy was created. It does not have a package, and its design is still basic. The next step for this part of the project is improving the design, and producing some copies, so the game can be shared with more people.

We are also working on an online version of the game to be developed as an application for Android and iOS systems. In that version, each player will also have a profile card, and this will be shared with everyone. Instead of a different player drawing fact cards, players will now have to choose among 3 options which fact will be used at each turn. That way, the game forces them to see

Permission to make digital or hard copies of part or all of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for third-party components of this work must be honored. For all other uses, contact the owner/author(s).

SIGCSE 2024, March 20–23, 2024, Portland, OR, USA

© 2024 Copyright held by the owner/author(s).

ACM ISBN 979-8-4007-0424-6/24/03.

<https://doi.org/10.1145/3626253.3635491>

which profile card each other player has and the facts related to those people. Since the goal is to maximize the points, the player will try to pick a card that gives them the most points, while giving others fewer points, so knowing if that fact applies to other profile cards will be essential. The online version besides being cheaper to produce, is also easier to share with other universities and Computer Sciences departments not physically close to us.

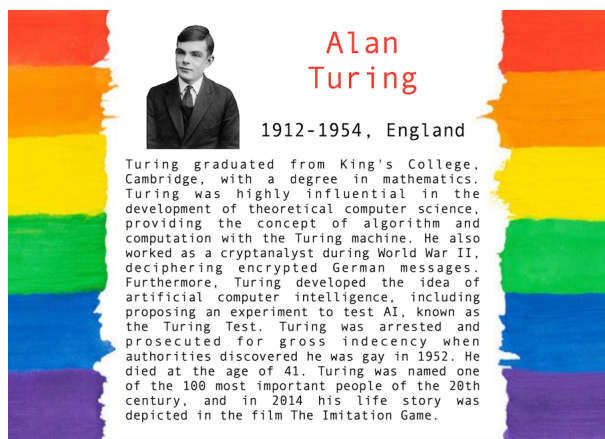


Figure 1: An example of a profile card with a small biography and picture of an LGBTQ+ pioneer in Computer Science.

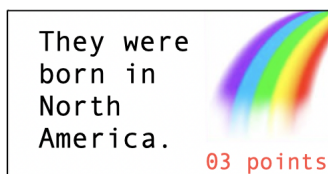


Figure 2: An example of a fact cards with facts found in some biographies.

The game's goal is to give players new role models and people that they can identify with, which is an important step when adding diversity [1, 7]. In the future, we also plan to create a website where people can submit other biographies and profile pictures to extend the profile cards. At the moment we have only 12 people who were selected based on their profile found online. We looked for people that nowadays are open about being part of the LGBTQ+ community, or who faced challenges for being part of this minority in the early days of Computer Science. Those pioneers were chosen to include different genders, nationalities, generations, and research fields. The list of selected names is:

- Alan Turing, 1912-1954, England
- Peter Landin, 1930-2009, England
- Tim Gill, 1953-, USA
- Luca Trevisan, 1971-, Italy

- Edith Windsor, 1929-2017, USA
- Sophie Wilson, 1957-, England
- Audrey Tang, 1981-, Taiwan
- Lynn Conway, 1932-, USA
- Jon 'maddog' Hall, 1950-, USA
- Christopher Strachey, 1916-1975, England
- Mary Ann Horton, 1955-, USA
- Sofia Kovalevskaya, 1850-1891, Russia

3 RESULTS AND IMPACT

The prototype of the paper version is ready, now an application based on the game is under development. The paper version has been tested in events organized by the LGBTQ+ group at our university, and having an application will make it easier to spread it to other universities as well. That way we want to share knowledge of amazing people and their contribution to Computer Science and also invite others to share their knowledge as well, by adding new bio cards to the game.

For our poster presentation, we envision not only having a poster describing our game but having some paper-versions ready to people test it and give us informal feedback.

It is important to note that in contrast to other minority groups, such as women and People of Color, it is harder to find people who are openly LGBTQ+. With this project, therefore, I not only want to share their impact in the field but also invite others to feel free and comfortable to open up about this personal side of their life, if they wish to, which they should be proud of.

REFERENCES

- [1] Elizabeth M. Almquist and Shirley S. Angrist. 1971. Role model influences on college women's career aspirations. *Merrill-Palmer Quarterly of Behavior and Development* 17, 3 (1971), 263–279.
- [2] David N Beede, Tiffany A Julian, David Langdon, George McKittrick, Beethika Khan, and Mark E Doms. 2011. Women in STEM: A gender gap to innovation. *Economics and Statistics Administration Issue Brief* 04-11 (2011).
- [3] Carlos Alberto Damas and Karina Mochetti. 2019. An analysis of homophobia on vandalism at Wikipedia.
- [4] Katy Dickinson, Susan Rogers, and Jessica Dickinson Goodman. 2014. "Notable Women in Computing" poster and playing cards.
- [5] Amanda Menier, Rebecca Zarch, and Stacey Sexton. 2021. Broadening Gender in Computing for Transgender and Nonbinary Learners. In *2021 Conference on Research in Equitable and Sustained Participation in Engineering, Computing, and Technology (RESPECT)*. IEEE, 1–5.
- [6] Ryan A Miller and Megan Downey. 2020. Examining the STEM Climate for Queer Students with Disabilities. *Journal of Postsecondary Education and Disability* 33, 2 (2020), 169–181.
- [7] Catherine Porter and Danila Serra. 2020. Gender differences in the choice of major: The importance of female role models. *American Economic Journal: Applied Economics* 12, 3 (2020), 226–54.
- [8] Katherine Rainey, Melissa Dancy, Roslyn Mickelson, Elizabeth Stearns, and Stephanie Moller. 2018. Race and gender differences in how sense of belonging influences decisions to major in STEM. *International journal of STEM education* 5, 1 (2018), 1–14.
- [9] Jane G Stout and Heather M Wright. 2016. Lesbian, gay, bisexual, transgender, and queer students' sense of belonging in computing: An Intersectional approach. *Computing in Science & Engineering* 18, 3 (2016), 24–30.
- [10] Jennifer Tsan, Kristy Elizabeth Boyer, and Collin F Lynch. 2016. How early does the CS gender gap emerge? A study of collaborative problem solving in 5th grade computer science. In *Proceedings of the 47th ACM technical symposium on computing science education*. 388–393.