ユタ州立大学

佐々木楓



スケジュール

2016.2.15	トビタテ応募書類提出
2016.5.14	トビタテ面接
2016.6.01	ユタ州立大学留学説明会
2016.6.08	書類・ポートフォリオ提出
2016.6.15	交換留学面接
2016.6.16	交換留学結果
2016.6.17	トビタテ結果
2016.8.21	出国
2017.6.04	帰国







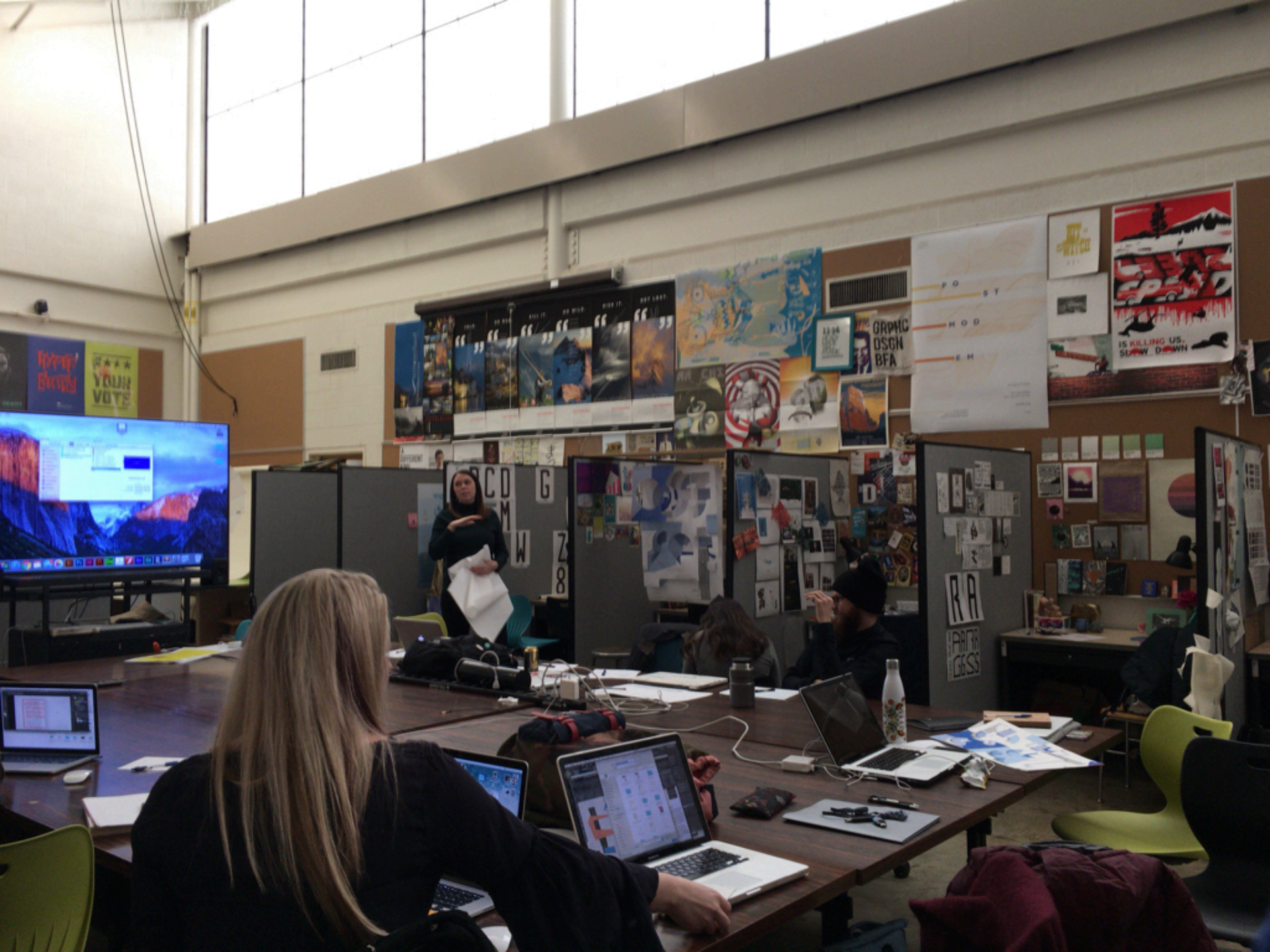


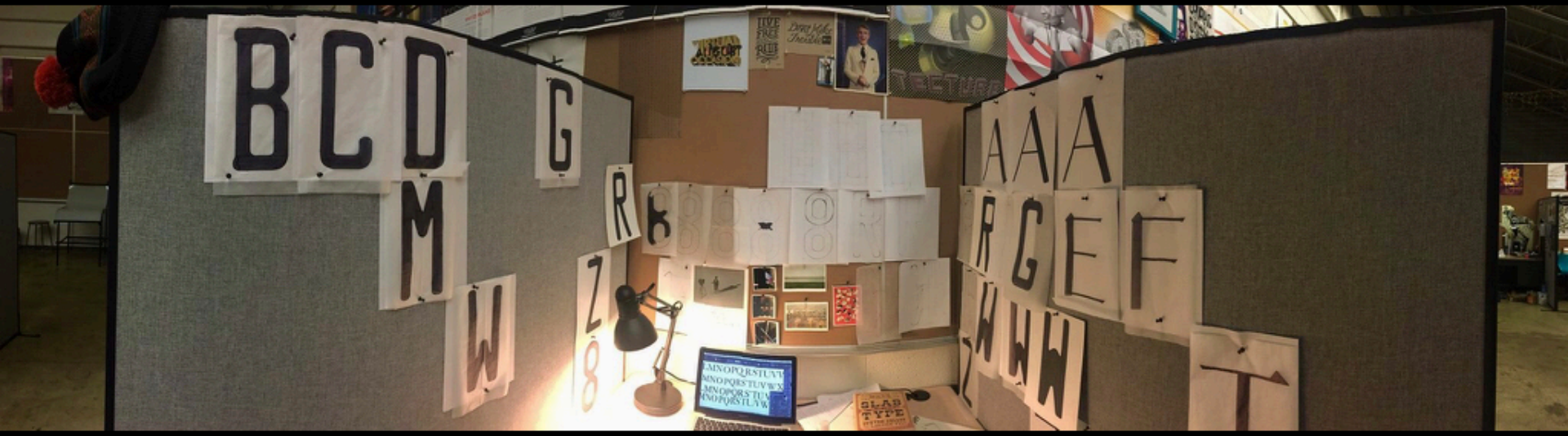


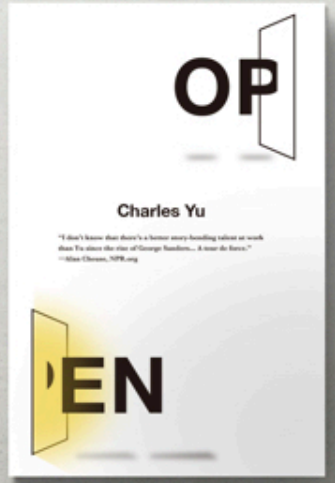





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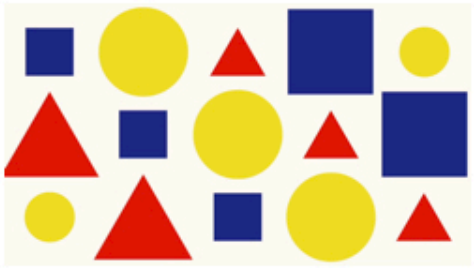

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夢の中
山火事
雨の音
熱心
五輪書


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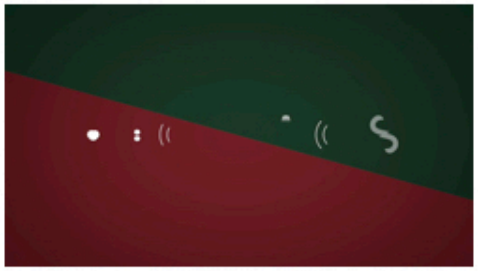


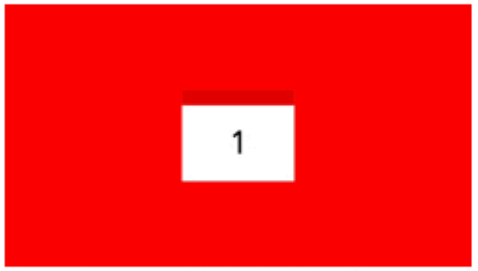

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THE STARS MAY BE SINGING

The study of fluids in motion – now known as hydrodynamics – goes back to the Egyptians so it has been involved in a lot of experiments but now it has provided something new: experimental evidence that stars may generate…sound.

The Stars May Be Singing

When examining the interaction between an ultra-intense laser and a plasma target, a team of scientists from the Science and Technology Facilities Council's (STFC) Central Laser Facility in Oxfordshire, the York Plasma Institute at the University of York, and the Tata Institute of Fundamental Research in Mumbai, India, noticed something unusual. They realised that in the trillionth of a second after the laser strikes, plasma flowed rapidly from areas of high density to more stagnant regions of low density, in such a way that it created something like a traffic jam.

Plasma piled up at the interface between the high and low density regions, generating a series of pressure pulses: a sound wave.

Credit: NASA, ESA and the Hubble Heritage (STScI/AURA)-ESA/Hubble Collaboration

Dr. Alex Robinson from the Plasma Physics Group at STFC's Central Laser Facility developed a numerical model to generate acoustic waves for the experiment. He said, "It was initially hard to determine the origin of the acoustic signals, but our model produced results that compared favorably with the wavelength shifts observed in the experiment. This showed that we had discovered a new way of generating sound from fluid flows. Similar situations could occur in plasma flowing around stars"

Amitava Adak, A. P. L. Robinson, Prashant Kumar Singh, et al., "Terahertz acoustics in hot dense laser-plasma", Physical Review Letters.

The sound generated was at such a high frequency that it would have left even bats and dolphins struggling. With a frequency of nearly a trillion hertz, the sound generated was not only unexpected, but was also at close to the highest frequency possible in such a material – six million times higher than that which can be heard by any mammal.

Dr. John Pasley from the York Plasma Institute said, "One of the few locations in nature where we believe this effect would occur is at the surface of stars. When they are accumulating new material stars could generate sound in a very similar manner to that which we observed in the laboratory – so the stars might be singing – but, since sound cannot propagate through the vacuum of space, no-one can hear them."

The technique used to observe the sound waves in the lab works very much like a police speed camera. It allows the scientists to very accurately measure how fluid is moving at the point that is struck by the laser on timescales of less than a trillionth of a second.

The research was funded by the Engineering and Physical Sciences Research Council and the Tata Institute of Fundamental Research.

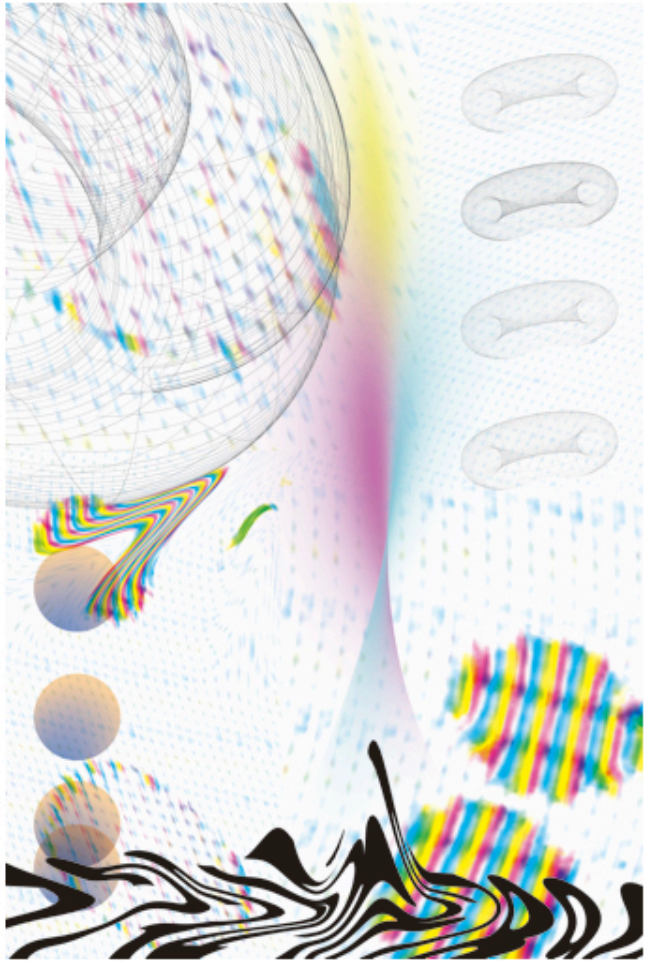


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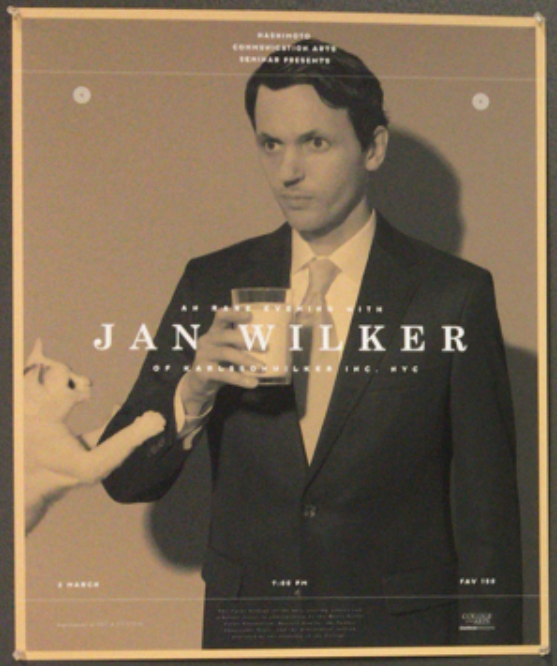
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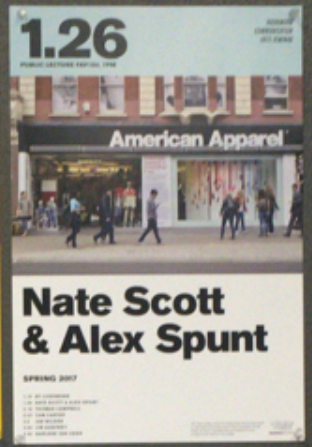


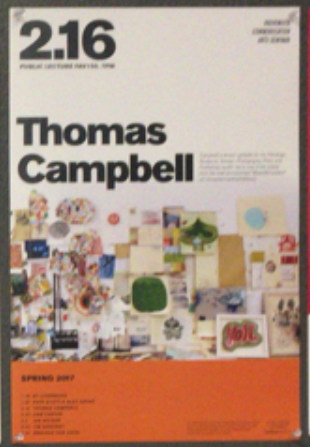
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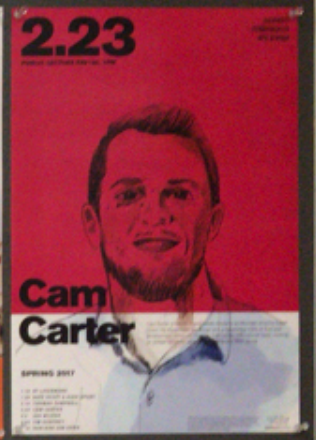
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IPHONE CASES

















ALL THE STUFF MINUS THE FUSS

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YOU SCROLLED TO THE RIGHT PLACE

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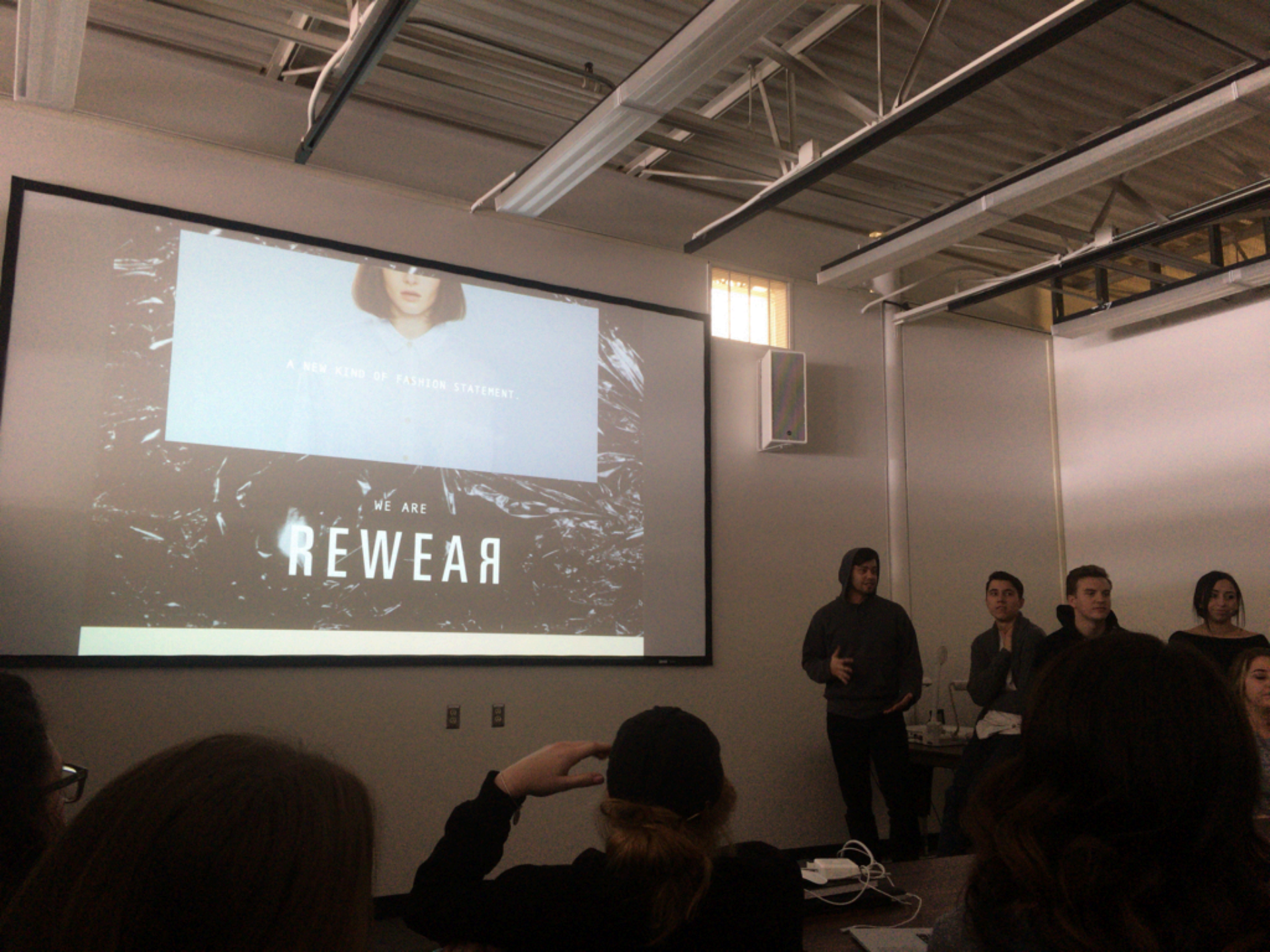
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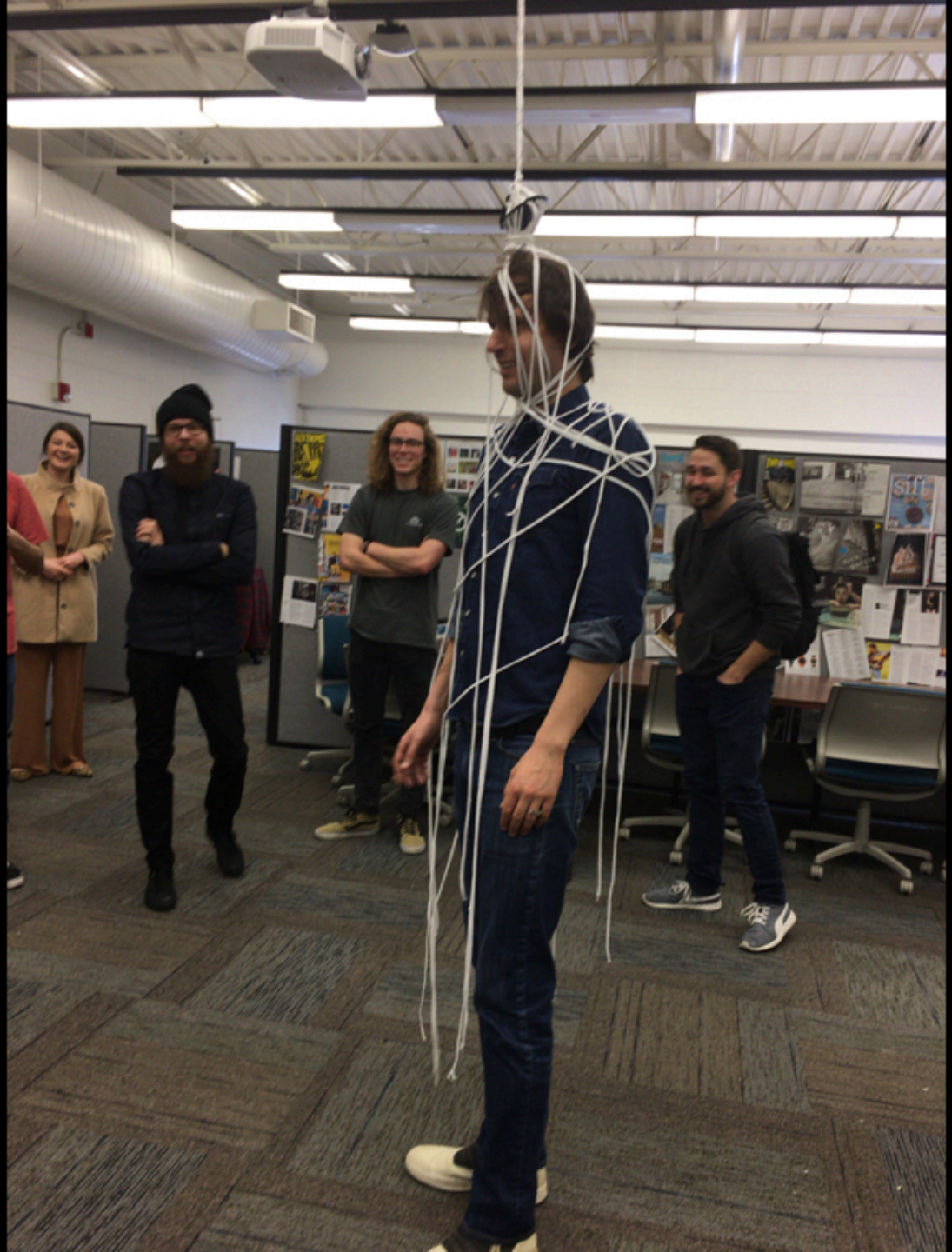
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