1112-11-66 **Leonardo Rafael Azopardo*** (lazopard@purdue.edu), 300 N. Salisbury Street #22, West Lafayette, IN 47906, **Maxim S Millan** (millanm@purdue.edu), 201 West Stadium Avenue, West Lafayette, 47906, and **Sarah Thomaz**. *Visualizing Dessins d'Enfants on the Torus.* Preliminary report.

A Belyĭ map $\beta : \mathbb{P}^1(\mathbb{C}) \to \mathbb{P}^1(\mathbb{C})$ is a rational function with at most three critical values; we may assume these values are $\{0, 1, \infty\}$. A Dessin d'Enfant is a planar bipartite graph obtained by considering the preimage of a path between two of these critical values, usually taken to be the line segment from 0 to 1. Replacing $\mathbb{P}^1$ with an elliptic curve E, there is a similar definition of a Belyĭ map $\beta : E(\mathbb{C}) \to \mathbb{P}^1(\mathbb{C})$. The corresponding Dessin d'Enfant can be drawn on the torus by composing with an elliptic logarithm: $\beta^{-1}\big([0,1]\big) \subseteq E(\mathbb{C}) \simeq \mathbb{T}^2(\mathbb{R})$.

In this project, we use the open source `Sage` to write code which takes an elliptic curve E and a Belyĭ map β to return a Dessin d'Enfant on the torus in two and three dimensions. Following a 2013 paper by Cremona and Thongjunthug, we make the elliptic logarithm $E(\mathbb{C}) \simeq \mathbb{C}/\Lambda$ explicit using a modification of the arithmetic-geometric mean, then compose with a canonical one-to-one correspondences $\mathbb{C}/\Lambda \simeq \mathbb{T}^2(\mathbb{R})$. (Received July 14, 2015)