

# Comic and Graphic Novel Artist Panel Database (CAPD)

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## Abstract

Documentation for the Comic and Graphic Novel Artist Panel Database (CAPD).

## 1 Introduction

This database was collected in 2006 by Taras Kowaliw at Concordia University in Montréal, Canada, and augmented in 2009 with a collection of images pulled randomly from a search engine. It is requested that any use of this database be accompanied artists' names, URLs, and a statement regarding their retained copyright, and a reference to our paper [1] and website (<http://kowaliw.ca/capd.html>).

A short opening paragraph with all the information might be:

The Comic and Graphic Novel Artist Panel Database (CAPD) is a collection of grayscale panel drawings organized by artist, and a control group. The control group consists of a set of constructed images, and a set of comic images drawn randomly from a search engine. The artists are: J. Burgess (<http://www.jimburgessdesign.com>); E. Kim (<http://www.inkskratch.com>); S. Notley (<http://www.angryflower.com>); R. Perez & R. Coughler (<http://www.butternutsquash.net>); S. Ramsoomair (<http://www.vgcats.com>); and B. Rivers (<http://benjaminrivers.com/emptywords>). All artists retain copyright of their work. The CAPD was collected and introduced by Kowaliw *et. al* [1], and is available at <http://kowaliw.ca/capd.html>.

The database consists of seven categories, one for each artist, and one “Other”. Each class consists of 150 training images and at least 80 validation images; The “Other” validation set contain 247 samples. All images are  $200 \times 200$  pixels or less, and stored in 8-bit PGM P5 format. The URL sources of the control group are listed in the file “Other/sources.txt”.

## 2 Artists and Image Copyright

The following artists contributed their work to the creation of the CAPD:

- Jim Burgess, *Able and Baker (A&B)*, <http://www.jimburgessdesign.com>
- Eric Kim, *Love as a Foreign Language (Love)*, <http://www.inkskratch.com>

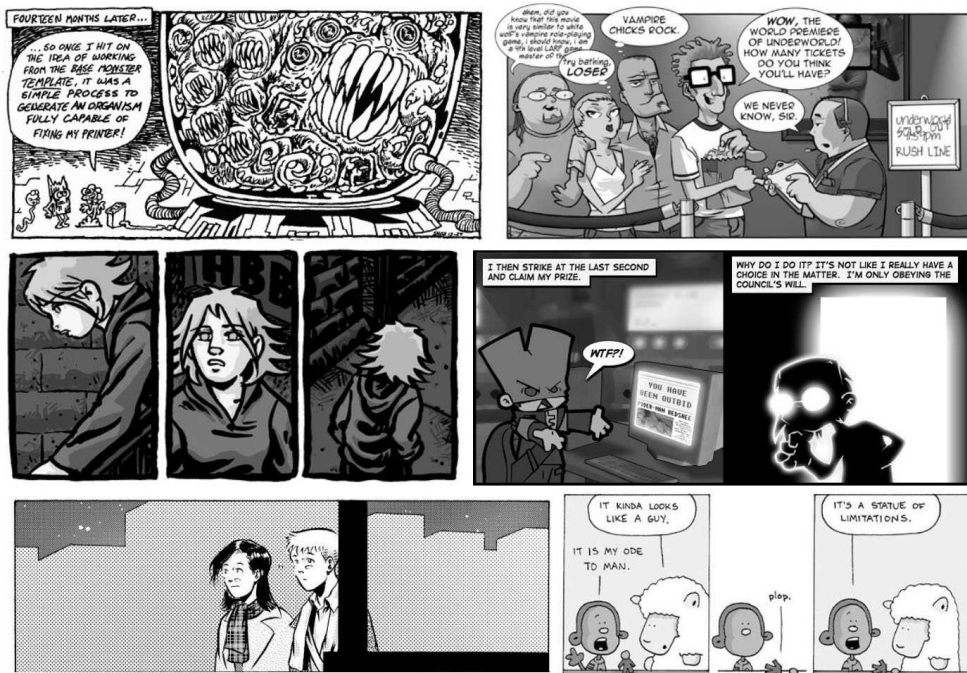


Figure 1: Examples of artists' work. From left to right, top to bottom: Notley's **Flower**; Perez & Coughler's **BNS**; Rivers' **Words**; Ramsoomair's **Cats**; Kim's **Love**; Burgess' **A&B**.

- Stephen Notley, *Bob the Angry Flower* (**Flower**), <http://www.angryBower.com>
- Ramon Perez & Rob Coughler, *ButterNutSquash* (**BNS**), <http://butternutsquash.net>
- Scott Ramsoomair, *VG Cats* (**Cats**), <http://www.vgcats.com>
- Benjamin Rivers, *Empty Words* (**Words**), <http://benjaminrivers.com/emptywords>

All work is protected by copyright, and may not be modified, reprinted or otherwise used for commercial purposes without permission. Rivers' work is part of the Creative Commons. Examples can be seen in Figure 1.

### 3 Collection Procedures

The CAPD is a non-standard database, and as such, there are few available guidelines for the collection of materials. Below, our collection process is described.

Artists were chosen on the basis of the following criteria: (a) response to a contact email<sup>1</sup>, (b) availability of sufficient online materials<sup>2</sup>, (c) artists authorization to use his or her work in a public database. It is probably impossible to estimate how representative this current sample of artists is of the space of comic and graphic novel artists as a whole; Additionally, there is no doubt that the authors' personal preferences played a role in selecting artists. Indeed, in retrospect, the majority of artists are Canadian, clearly a result of the author's bias. However, we consider it

<sup>1</sup>A list of possible artists was obtained by mining the "links" section of a resource site.

<sup>2</sup>Several artists were excluded for the reason of re-use of images, i.e. utilizing the same image as a component of many panels or strips.

unlikely that the above process would produce any significant bias in terms of classifiability of style.

In all of the above cases, the artists had collected their panels into strips or pages. From the totality of these strips or pages (as were listed on the public websites, or as were sent to the author, as of February 2006), a collection were chosen randomly, enough to yield approximately 250 panels.

In 2009, an additional set of images were collected, to be used as a control group. Twenty images consisting of simple geometric patterns were created (i.e. all white, all black, gradients, etc.), included to act as extreme points in the space. Next, a Google search was undertaken, using options to filter for images that were “black and white” “line drawings”, using the key phrase “graphic novel comic”. A subset of panels was drawn randomly, and placed under the heading name “Other”.

The pages were then broken into panels. Panels are often denoted by a surrounding black box: in these cases, the box, including the border, were the cutoff point for the panel. However, often these boxes were non-existent, or implied. In these cases, when explicit bounding boxes were missing, or when elements exceeded the border, the following logic was used to break pages into panels: (a) Graphical foreground elements were always preserved intact, even if sections of distinct panels would be included as background elements. Graphical foreground elements includes stylized text, but not normal text; (b) Foreground regular text elements were only preserved if distinct panels were not included; (c) explicit panels were always included, even if an element from another panel invaded the space; (d) negative space was included in the case of an explicit surrounding box (drawn in black or grey), but excluded in cases where the panel size was implied (empty white space). Otherwise, every effort was made to keep connected pieces of art intact, but excluding any distinct panels that might overlap. Finally, panels were excluded for the following reasons: (a) a panel consisting of only non-stylized text, and (b) a panel consisting of monochromatic black, white or grey, (c) the contents of the panel were not drawn by the artist (e.g. an inserted photograph), or were purposefully drawn in a distinct minimal style (e.g. a single dot or a stick figure), and finally, (d) the panel was drawn using a strong diagonal which could not be reasonably placed in a bounding box.

Finally, panels were resized to fit in a box of size  $200 \times 200$  pixels and converted to grayscale PGM, via netpbm.

These panels are undoubtedly of a lower quality than the artists would intend for viewing; the interested reader is urged to visit the artists’ websites to see the works in their original context.

## References

- [1] T. Kowaliw, J. McCormack, and A. Dorin *Evolutionary Automated Recognition and Characterization of an Individual’s Artistic Style*, in Proceedings of the IEEE Congress on Evolutionary Computation (CEC ’10), 2010.