



My Project at Ugam Solutions

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My Project at Ugam - To Professors

I worked on two projects at Ugam.

1. [ORS Image Project] Foreground Extraction - By image segmentation
2. [B2B Digitization Project] Voice Recognition Tool - To ease document entry task

ORS Image Project:

ORS Nasco, an Essendant company - leading wholesale distributor of workplace essentials in USA is the client for the project. ORS Nasco requires us to resize, rename and remove background such that client can place in any background of interest. I used OpenCV and other Python libraries like PIL, Image, JSON, AST etc. Re-sizing is done using `cv2.resize()` function of OpenCV. Re-naming is done using `pyexcel ods` (to read from excel file) and python dictionary to store key-value pairs. Grab-Cut algorithm which is based on Graph-Cut is used to remove background. Grab-Cut fixes a bounding rectangle around the foreground. Then a tri-map of foreground, background and unknown pixels is formed. This is given to GMM (Gaussian Mixture Model). GMM classifies unknown pixels into either foreground or background based on pixel intensities. Graph is then formed with pixels as vertices and pixel differences as edges. Min-Flow algorithm (Karger's Algorithm) is used to remove the edges which eventually removes the background.

B2B Digitization Project:

The key idea of Digitization Project is to automate the document entry task. Ugam gets receipts from business firms like staples in different formats like excel, image, PDF, emails etc. We do it manually by looking into receipts for required details which will then be entered into standard excel format. It is a tedious task. I tried `teserract-ocr` library, Google's OCR library to get information. We faced various challenges with the approach. Receipts come in unpredictable formats.

We then developed a voice recognition tool. User just reads out the details which are directly entered into standard excel format. Although it can't outlay fast typists, it has other use cases like mystery shopping, employment to physically challenged.

My Project at Ugam – To Friends

I worked on two projects.

1. Foreground Extraction - By image segmentation
2. Automation Of Document Entry - To ease document entry task & other applications

Foreground Extraction:

Three tasks to be automated - Re-sizing, re-naming and path tracing. I used OpenCV and other Python libraries like PIL, Image, JSON, AST etc. Re-sizing is done using `cv2.resize()` function of OpenCV. Re-naming is done using `pyexcel_ods` (to read from excel file) and python dictionary to store key-value pairs. Grab-Cut algorithm which is based on Graph-Cut is used to remove background. Grab-Cut fixes a bounding rectangle around the foreground. Then a tri-map of foreground, background and unknown pixels is formed. This is given to GMM (Gaussian Mixture Model). GMM classifies unknown pixels into either foreground or background based on pixel intensities. Graph is then formed with pixels as vertices and pixel differences as edges. Min-Flow algorithm (Karger's Algorithm) is used to remove the edges which eventually removes the background.

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My Project at Ugam – To Family

I worked on two projects.

1. Foreground Extraction - By image segmentation
2. Automation Of Document Entry - To ease document entry task & other applications

Foreground Extraction:

Three tasks to be automated - (Re-sizing, re-naming and path tracing) on images given by client. I used a scripting language called python to do it. Client requires us to resize, rename and remove background such that he can keep them on any background interest.

B2B Digitization Project:

The key idea of Digitization Project is to automate the document entry task. Ugam gets receipts from business firms like staples in different formats like excel, image, PDF, emails etc. We do it manually by looking into receipts for required details which will then be entered into standard excel format. It is a tedious task. I tried OCR approach. OCR is a technique which can read the text in image. We faced various challenges with the approach. Receipts come in unpredictable formats.

We then developed a voice recognition tool. User just reads out the details which are directly entered into standard excel format. Although it can't outlay fast typists, it has other use cases like mystery shopping, employment to physically challenged.

Ugam is a global leader in managed analytics that helps retailers, brands and market research firms transform big data into valuable insights. The company's unique managed services offering combines a proprietary big data technology platform with deep domain knowledge and analytics expertise to empower clients to make decisions that improve their business. For retailers, online marketplaces and brands, Ugam supports better merchandising, marketing and channel management decisions through the use of analytics. For market research firms and insight-based consultancies, Ugam offers a portfolio of solutions including end-to-end research operations, technology transitioning support, and data warehousing, visualization and reporting that enables them to better serve their clients. **Five of the top 10 U.S. retailers, four of the leading Australian retailers, many of the world's largest brands and online marketplaces, and 13 of the top 25 market research firms** work with Ugam because of its ability to deliver high-quality insights with unmatched customer experience.

For more information, contact: sales@ugamsolutions.com