

The People Inside

Tim Sherratt and Kate Bagnall

Our collection begins with an example of computer vision that cuts through time and bureaucratic opacity to help us meet real people from the past. Buried in thousands of files in the National Archives of Australia is evidence of the exclusionary “White Australia” policies of the nineteenth and twentieth centuries, which were intended to limit and discourage immigration by non-Europeans. Tim Sherratt and Kate Bagnall decided to see what would happen if they used a form of face-detection software made ubiquitous by modern surveillance systems and applied it to a security system of a century ago. What we get is a new way to see the government documents, not as a source of statistics but, Sherratt and Bagnall argue, as powerful evidence of the people affected by racism.

In October 1911, the *Sydney Morning Herald* reported a local businessman’s complaints about his treatment by the Australian Customs Department. Charles Yee Wing, “a merchant of some standing, held in high esteem by Europeans and Chinese alike,” was planning a short trip to China.¹ He had applied to the department for a certificate that would allow him to re-enter Australia on his return but was annoyed when officials insisted that he be photographed “in various positions” to document his identity. A naturalized British subject, respectable family man, and long-term resident of Sydney, Charles Yee Wing objected to being treated “just like a criminal.”

Today we are accustomed to being identified by our image. Passports, driver’s licenses, student cards—we readily submit to being photographed for a variety of purposes, and we carry the images with us as proof that we

are who we say we are. The propagation and use of these likenesses has changed with the development of computer vision technology. Individual images can be discovered, analyzed, and compared across populations. The primary instrument of control has moved from document to database.

We are historians interested in bureaucratic systems for identification and control, and the impact of digital access on our understanding of how they worked. Kate's research explores the social and familial worlds of Chinese Australians, particularly those of mixed race, in the late nineteenth and early twentieth centuries. Tim is a hacker who uses digital technologies to open cultural collections to new forms of analysis and exploration. Together we have been focused on the vast collection of records generated by Australia's efforts to restrict non-European migration in the first half of the twentieth century. Among these records, preserved in the National Archives of Australia, are photographs and archival fragments documenting the life of Charles Yee Wing and thousands of others.

Computer vision can easily be used to find and recognize faces. Such technologies are often associated with the needs of law enforcement and national security, with the continued extension of systems for the identification and control of individuals. The latest facial recognition algorithms share a lineage with the thousands of immigration documents held by the National Archives. But can we use new technologies of identification to reveal the old? This chapter discusses an attempt to use facial detection technology to see archival records differently. What happens when instead of files and documents, systems and procedures, we see the people inside?

White Australia

Charles Yee Wing had a point in complaining about his treatment by the Customs Department. A century ago using portrait photography and fingerprinting to identify individuals was still fairly new, and until the early twentieth century, the most common official use of these technologies was to identify and manage criminals. Similar to law enforcement agencies in England, Europe, and the United States, the police in New South Wales, where Charles Yee Wing had lived since 1877, kept photographic gaol description books from around 1870.² The gaol description books placed "mug shots" of convicted criminals alongside biographic information and a physical description to identify and keep track of convicted criminals.³

By the 1890s Australia's colonial governments extended the use of these identification technologies to monitor and control the movement of peo-

ple across their boundaries, and these practices were continued on a national scale after Federation under the Immigration Restriction Act 1901. But not all travelers were treated equally under this new law. Passports in the modern sense were not introduced until later, during World War I, and this earlier regime targeted certain groups whose presence was seen to be at odds with white Australians' vision for their young nation.⁴ Charles Yee Wing's photographs identified his race as well as his face.

The Immigration Restriction Act remained in force, with amendments and a slight change of name, until 1958. The Act was the legislative backbone of what became known as the White Australia policy—a discriminatory system founded on the conviction that a strong and self-reliant Australia must, of necessity, be “white.”⁵ Yet the Act itself said nothing about “color” or “race.” It was, by design, a fairly inoffensive piece of bureaucratic machinery that empowered the Commonwealth to reject certain classes of immigrant, including convicted criminals, the physically or mentally ill, or those who were deemed morally unfit. The history of colonial cooperation and the movement to Federation told the real story, however, and debates surrounding the passage of the Act, both in Parliament and in the press, made the context explicit—“color” was crucial. In the words of Attorney-General and future Prime Minister Alfred Deakin in 1901, “The unity of Australia is nothing, if that does not imply a united race.”⁶

The practices of discrimination and exclusion at the heart of the Immigration Restriction Act were elaborated gradually through regulations, reviews, precedents, notes, and guidelines. Between 1902 and 1911, the head of the Department of External Affairs issued more than 400 circulars about immigration restriction to Customs staff,⁷ and while the Act may have fudged its racial dimensions, such advice to government officials did not. For example, one memorandum from 1936 plainly stated: “In pursuance of the ‘White Australia’ policy, the general practice is not to permit Asiatics or other coloured immigrants to enter Australia for the purpose of settling here permanently.”⁸

The principal instrument of exclusion under the Immigration Restriction Act was the innocuous-sounding Dictation Test. This test required an arriving passenger to write down a passage that was read to them in a European (later, any) language; failing the test meant deportation. To remove any misunderstanding of those administering it, the test's role was explained in a confidential note to Customs officials: “It is intended that the Dictation Test shall be an absolute bar to admission.”⁹ While the Act itself was silent on the details, officers were informed that all “persons of

coloured races” who were not otherwise exempted from the provisions of the Act would be subjected to the Dictation Test—and they would fail. The deterrent effect of the Dictation Test was striking. In 1902, 651 arriving travelers were tested but only 33 passed. In 1905, 107 were tested and just 3 passed. In 1913, 71 were tested and all failed.¹⁰ Ultimately people just stopped trying to come.

The Dictation Test was clearly effective at preventing new arrivals, but the system also had to accommodate the thousands of “colored” Australians who, like Charles Yee Wing, needed to be able to return home to Australia after traveling overseas. The first national census held in 1911 counted over 40,000 people of “non-European race” (not including Indigenous Australians) in the country, around 25,000 of whom were Chinese.¹¹ On their return they needed to prove their right to land by convincing Customs officials of their identity and of the validity of their claim to Australian domicile. Neither long-time residents, naturalized British subjects, nor the Australian-born could take for granted their right to re-entry if they looked “Asiatic” or “coloured.” They needed a piece of paper to prove it (see figure 1.1).

Some relied on naturalization papers or Australian birth certificates as proof, but most traveled after having applied and paid for an official certificate that would exempt them from the operations of the Dictation Test. The form of these certificates changed over time. In the earliest years of the Act, nonwhite residents could be granted a Certificate of Domicile. In 1905 this was replaced by the Certificate Exempting from Dictation Test (CEDT). Starting in 1903 these documents included photographs and handprints (later thumbprints), as well as a physical description, biographical information, and travel details.¹²

Nonwhite residents had to obtain a new CEDT for every journey. Two copies of the certificates were made—the traveler carried one, while a duplicate was retained by the Customs Department at the port of departure. On return the two copies were compared, the identity of the bearer was scrutinized, and officials decided if the traveler could stay or if the traveler would be deported as a “prohibited immigrant.” Many thousands of these certificates have been preserved. A growing number have been digitized and are available online. With portrait photographs and inky black handprints, these certificates are visually compelling documents.

Form No. 21.

COMMONWEALTH OF AUSTRALIA.

No. *301*

Immigration Restriction Acts 1901-1905 and Regulations.

CERTIFICATE EXEMPTING FROM DICTATION TEST.

I, *John Baxter* the Collector of Customs for the State of *New South Wales* in the said Commonwealth, hereby certify that *Yee Wing* hereinafter described, who is leaving the Commonwealth temporarily, will be excepted from the provisions of paragraph (a) of Section 3 of the Act if he returns to the Commonwealth within a period of *six months* from this date.

Date *May 1908* *John Baxter* Collector of Customs.

DESCRIPTION.

Nationality *Chinese* Birthplace *Amoy*
Age *46 years* Complexion *Dark*
Height *Medium* Hair *Black*
Build *Medium* Eyes *Brown*
Particular marks.....
(For impression of hand see back of this document.)

By Authority: ROBT. S. HARRIS, Government Printer, Melbourne.



Date of departure *May 1908* Destination *Fiji*
Ship *Sura*
Date of return *June 30. 08* Ship *Sura*
Port *Sydney* *J. C. Cobb* Customs Officer

Figure 1.1. Charles Yee Wing's Certificate Exempting from Dictation Test from 1908, when he traveled from Sydney to Fiji. NAA: ST84/1, 1908/301-310.

Records

The bureaucratic record-keeping system that underpinned the Immigration Restriction Act is preserved within the National Archives of Australia. As well as the exemption certificates, there are policy documents, departmental correspondence, case files, naturalization and birth records, reference letters, application forms, police reports, registers, indexes, and more. It is somewhat ironic that the records left by the bureaucracy of White Australia, an ideology that sought to marginalize and even deny the existence of “nonwhite” Australians, in fact document their lives in considerable detail and provide tangible evidence of Australia’s multiracial past.

Around the world there is a growing number of examples where records of control, surveillance, or oppression are being used to recover information about marginalized individuals or groups. “Records,” argues archivist Eric Ketelaar, “may be instruments of power, but, paradoxically, the same records can also become instruments of empowerment and liberation, salvation and freedom.”¹³ Ketelaar points to the use of Nazi documents in delivering compensation for assets seized during the Holocaust. In Australia, official records have been important in revealing the shocking history of forced removal of Aboriginal children from their families from the nineteenth century to as recently as the 1960s—they are known as the “Stolen Generations,” so named after groundbreaking work by historian Peter Read.¹⁴

Beyond supporting claims for social justice, such records can be embraced as sources of family or community heritage. For instance, historian Ricardo Punzalan describes how records of a US-administered leprosarium in the Philippines have been reclaimed as a symbol of community pride.¹⁵ Mark Aarons has written a history of his politically engaged family through detailed surveillance files accumulated by the Australian Security Intelligence Organisation.¹⁶ And records created under the White Australia policy, as well as similar systems in Canada, the United States, and New Zealand, are actively being used by family and community historians of Chinese, Japanese, Afghan, Indian, and Syrian descent to explore this aspect of their heritage for the first time. But these records are often preserved as evidence of systems rather than people. As archival theorists such as Terry Cook, Verne Harris, and Wendy Duff have argued, archival description is itself full of politics. Archivists “cannot describe records in an unbiased, neutral, or objective way,” note Duff and Harris. “Descriptions

inevitably privilege some views and diminish others.”¹⁷ What if, however, technology could open descriptive systems to new perspectives?

Historian Tim Hitchcock has written about how digitization and keyword searching has “freed us from the habit of mind implied by the structure of the archives.” We can see people as well as institutions, lives as well as bureaucratic processes. “What changes,” Hitchcock asks, “when we examine the world through the collected fragments of knowledge that we can recover about a single person, reorganized as a biographical narrative, rather than as part of an archival system?”¹⁸

Hacking the Archives

As historians, we have experienced many moments of excitement and inspiration in the collections of the National Archives of Australia. We are deeply in love with the records and the stories they reveal. We cannot say the same about the National Archives’ collection database, RecordSearch. Among its frustrations, RecordSearch’s authentication system makes sharing and citing links difficult. Until recently, its digitized file viewer lacked basic functionality and important contextual information. Despite some improvements over the years, it is a system that reflects the management practices of archives rather than the access needs of researchers. This, of course, is not unusual in the world of cultural heritage collections.

While working for the National Archives of Australia in 2007–08, we realized that it was possible to hack around some of these limitations. Creating a Zotero translator to extract structured data from RecordSearch pages revealed the power of screen-scraping—we did not have to live only with what was rendered in the browser. Around the same time we were involved in a project, Mapping Our Anzacs, to create a map-based interface to 375,000 World War I service records.¹⁹ This involved manipulating existing descriptive data to create new modes of access. Learning Python with the help of The Programming Historian finally pushed us over the edge and we created the first in a series of Python-based screen-scrapers to harvest data directly from RecordSearch. We were hooked.²⁰

Throughout this journey of exploration and enlightenment, the records of the White Australia policy remained close to our hearts. One of our hacks was a userscript that upgraded RecordSearch’s digitized file viewer. Userscripts are Javascript programs that run in the browser to rewrite the form and functionality of selected web pages. Our script added options

for navigation and printing, but it also made use of the Cooliris browser plugin to display images on a floating 3D wall. It offered a completely different way of seeing the archives.²¹ We excitedly pointed our new viewer at digitized files full of CEDTs. The wall of documents we saw, of faces and handprints of men, women, and children marginalized by White Australia, affirmed our belief that these records were not only historically significant, they were visually compelling. They had to be seen.

Our plotting continued after we left our jobs at the National Archives, but without an institutional home it seemed impossible to create and sustain a new research project. Until we just *did* it. Inspired by Hacking the Academy, we wondered what would happen if we just started talking about what we wanted to do—without funding, without research partners, without timelines.²² And so we launched Invisible Australians: Living Under the White Australia Policy, a web-based project designed to pull together the biographical threads embedded in the archives.²³ Our aim was to be “modular and opportunistic”—to be able to grow when resources allowed, to bolt on related projects, to absorb existing tools and technologies.²⁴ The history locked in these records was too important not to try.

How We Found the Faces

In the meantime other coders and hackers we knew were doing interesting things with cultural collections. Mitchell Whitelaw, for instance, started exploring the Visible Archive, developing techniques to see beyond a single file or document to the complete holdings of the National Archives of Australia.²⁵ Paul Hagon wondered whether facial detection technology could be used as a means of discovery within the photographic collections of the National Library of Australia.²⁶ Whitelaw’s challenge to show it all and Hagon’s idea to create new access points by extracting features from images inspired us to reconsider how we might see the records of the White Australia policy. Instead of a wall of documents, what could we learn from a wall of faces?

It would be nice to portray our process in hindsight as something careful and rigorous. But it was much more a case of playing with possibilities. Originally we had imagined that identifying and extracting photographs from CEDTs would be a semimanual, crowdsourced process, with volunteers marking up the coordinates of each individual photograph. But one weekend we just googled “facial detection python” and found a Python

script that used OpenCV to identify faces within images. OpenCV, we learned, was the go-to package for computer vision hackers.

People are really good at recognizing the characteristics of a face. We do it without thinking. Indeed, we are so good at it that we tend to “see” faces in all sorts of odd contexts—a phenomenon known as *pareidolia*. Computers have no such ability. They can be trained to detect a face, but generally this involves breaking the task down into many small, simple calculations.²⁷ Training computers to identify objects in images can be a complex and time-consuming business, but fortunately OpenCV ships with a number of pretrained “classifiers” that enable you to detect faces, eyes, and even cats.

With all the hard work of training done for us, finding faces was simply a matter of opening images using Python and feeding through them through the OpenCV classifier. We pointed the script we found at some CEDTs and, after a bit of tweaking, it worked! OpenCV fed us back the coordinates of any faces it found, and with some basic image manipulation in Python we could crop those areas and save them as new files. It was surprisingly easy to extract portrait photographs from archival documents.

We knew little about the technology of facial detection when we ran our first experiments. However, once we saw that it worked we started to think about what came next. Could we apply this extraction technique to the many thousands of documents held by the National Archives? First we needed easy access to all those image files. It is tempting to skim over the process of assembling our collection of images—downloading files is not as exciting as extracting faces—but, in reality, we have spent much more time wrestling with the frustrations of RecordSearch than with OpenCV. Cultural heritage institutions are starting to make metadata and images available in forms that encourage digital research. But research, by its nature, tests the boundaries of meaning, evidence, and access—we cannot be satisfied with what we are given. In the case of RecordSearch we had no option but to extract what we needed from the web interface through the process of screen-scraping. Reverse engineering an ASP.NET website with session-based authentication and a seemingly endless maze of redirects is challenging. Screen-scraping RecordSearch was only possible using libraries such as Mechanize and RoboBrowser, which mimic the behavior of web browsers.²⁸

Fortunately, when we began our facial detection experiments we had already built a working screen-scraper. It has since undergone several bouts of breakage and revision as changes to RecordSearch wrought new mys-

teries and complications. But at the time we simply pointed our scraper at the archival series ST84/1, which we knew contained a large number of CEDTs, and waited. Eventually we had a collection of 12,502 images and we could start looking for faces.

Although looping through the images and applying the facial detection script was straightforward, there was much trial and error as we sought to improve the script's accuracy while minimizing the number of false positives.²⁹ Lacking a detailed understanding of how the facial detection algorithm actually worked, we simply plugged a variety of values into the “scale factor” and “minimum neighbors” parameters of the object detection module and observed the results. Eventually we settled on an appropriate balance and weeded out a few more false positives by applying an extra check to each cropped face. But this work forced us to ask, “What is a face?”

The facial detection algorithm simply returned a list of coordinates—a box for every face it thought it had found in the image, tightly focused on eyes, nose, and mouth. They were portraits reframed according to an algorithm's own assumptions of significance—*these* are the features that define a face. As we viewed the initial output of our script we made the small but important decision to expand the boxes. Adding an extra fifty pixels to each side kept the focus, but revealed more of the person. It seemed to make a difference.

With configuration complete we unleashed the script on all 12,502 images and watched with alarm as the CPU temperature of our three-year-old laptop soared. It is a computationally intensive process but possible even with modest technological resources. The laptop survived and, after several hours, we had a folder containing 11,170 cropped images. Despite our best efforts, many false positives remained. We simply weeded these out manually, leaving us with 7,247 faces (see figure 1.2).

The resulting images offered a powerful commentary about White Australia, and we wanted to display them in a way that was both simple and direct. It was the faces that mattered. Using the web application framework Django to manage the metadata and deliver the content, we created an interface using the Javascript libraries Isotope and Infinite Scroll. Although the project built on our history of RecordSearch hacking, it was a quick experiment that took little more than a weekend to harvest, process, and build. The result was a wall of faces—continuous, compelling, and unsettling. The more you scroll, the more faces appear. Faces of the people who destabilized Australia's claim of being a white nation—thousands of men, and a smattering of women and children, of Chinese, Japanese, Indian, and



Figure 1.2. The Real Face of White Australia, <http://invisibleaustralians.org/faces/>

Syrian heritage, to name a few. Faces of the people who lived their lives within a system of surveillance and control. Faces of the people who built homes, families, and businesses in a country that sought to deny their existence. This was the Real Face of White Australia.

Seeing

In 2012 we received an email from Mayu Kanamori, an artist researching the life of an early Japanese Australian photographer, Yasukichi Murakami, who had arrived and settled in Western Australia in 1897. Kanamori had come across the Invisible Australians site in her research and felt moved to thank us for what we were doing, writing: “When I scrolled down the Faces section of your website, browsing through the faces, tears welled up, and I couldn’t stop crying as if some sort of flood gates had been removed.”³⁰

We knew that the records, the photographs, the handprints, all carried emotive weight—it was the very reason we sought to expose them. What we did not quite realize was the effect of scale. Bringing all those photos together, without interpretation or intermediation, created a different type of experience. As Peter Binkley commented: “[The Real Face of White Australia] zooms you from the macro level of political criticism of the racist

policy down to the micro level of individual stories, and back again through the sheer accumulation of cases.”³¹

Our simple wall of faces showed that this was not just an archive, not just a policy.

The level of interest in the project from the international digital humanities (DH) community was also unexpected. In a September 2011 blog post we described our experiment, the technical details, and the context of the records.³² A few months later Tim explored the broader significance of the project in a presentation at the National Digital Forum (NDF) in New Zealand. One of our posts was picked up and reposted in South Africa.³³ Tim’s NDF talk was then published in the inaugural edition of the *Journal of Digital Humanities*.³⁴ Before long our weekend experiment was studied in digital history courses, discussed at museum conferences, and cited in research on a variety of topics including visualization, serendipity, and race.³⁵

Perhaps most surprising to us was the way the Real Face of White Australia was seen to illustrate key aspects of digital humanities practice. James Smithies described it as “one of the signal DH publications of 2011,” while Ted Underwood pointed to Tim’s NDF presentation as a “pep talk” for those uncertain where to start in the field.³⁶ Our experiment with computer vision offered an example of DH’s hacker ethos—of what becomes possible when you dig into code. At the same time it was also cited as a DH project that critically engaged with questions of race and power.³⁷

This was an experiment without an institutional home, built over a weekend on an aging laptop in our study. Building on our experience of getting data out of RecordSearch, and taking advantage of sophisticated open-source libraries such as OpenCV, we were able to create a new way of seeing and using the records. But the wall of faces was more than just an interface. The responses it garnered seemed to justify our decision to launch Invisible Australians as a research project without structure or support. The wall was a piece of opportunistic hacking that transformed our promises into something more tangible—it communicated our intentions more effectively than any manifesto or research plan.

Despite the project’s overall success, there were difficulties beyond the technical and logistical challenges. Concerns about representation and responsibility arose numerous times as we grappled with the technology and the records, and criticisms of the project have tended to focus on questions of context and selection. One post thought it was “ethically dubious” to present the photos without consent, separated from the original documents.³⁸ Others misunderstood the process and thought we were identify-

ing people *by* race. But rather than separating people by race, we sought to reveal the way in which the bureaucracy was creating the categories of “white” and “nonwhite” through the operations of the White Australia policy. As Kate’s work on Anglo-Chinese Australians has shown, officials administering the Immigration Restriction Act focused on identities such as “Chinese,” “Asiatic,” “half-caste,” or “colored” over “Australian,” “British,” “European,” or “white.”³⁹ The individuals whose photographs appeared on our wall were ordinary people living ordinary lives, subjected to a system of discrimination and control primarily because of their appearance—their images appeared on the wall because of the racist machinery of the Australian government.

It could be easy to think of Invisible Australians as some sort of rescue mission, liberating people from the archives of oppression. But archivists Wendy Duff and Verne Harris have noted dangers in taking it upon ourselves to restore missing voices to the historical record. “How can we avoid the danger of speaking for these voices?” they ask. “How can we avoid reinforcing marginalization by naming ‘the marginalized’ as marginal?”⁴⁰ Part of the task of our wider project in Invisible Australians is to provide space for people to be people. To have lives that surprise and confound us. To act in ways that challenge our categories. To resist us, to refuse to be aggregated, tallied, or visualized.

As we embarked on creating the wall of faces, historian Sophie Couchman’s work on early official identification photography and the Chinese in Australia was present in our minds. Couchman has written about a popular traveling exhibition, *Forgotten Faces: Chinese and the Law*, curated by the Public Record Office of Victoria and the Golden Dragon Museum in Bendigo in 2005. The exhibition presented large reproductions of gaol photographs of Chinese men imprisoned in Victoria between the 1870s and 1900, accompanied by brief biographical sketches drawn mostly from court and prison records. Couchman was critical of the exhibition for “deliberately pulling photographs of Chinese prisoners from the wider prison archive,” thereby presenting the Chinese in Victoria as criminals and powerless victims of government bureaucracy.⁴¹ She further noted that this process of selection obscured the fact that Victoria’s system of gaol photography treated Chinese criminals in the same way as white criminals.

As our script cleverly selected and cropped out face after face from the CEDTs, we thought about whether the same sorts of criticisms could be leveled at what we were doing. Was the Real Face of White Australia just another type of rogues’ gallery? Were we representing our subjects as more

than just passive victims of a racist bureaucracy? Were we using their images respectfully and decently? Could the images be understood by a contemporary audience? How could the resistance and agency of people like Charles Yee Wing be acknowledged?

Other work by Sophie Couchman looks closely at a series of photographs of Chinese entering Victoria that were used for immigration control purposes—one small part of the massive archive of the White Australia policy, like the CEDTs. In her reading of the 269 photographs, which date from 1899 to 1901, Couchman noted that these were “not so mug mugshots” in that the Chinese subjects had a deal of autonomy in the way they represented themselves—in their choice of clothing and accessories such as umbrellas and hats (and even a bicycle), and in their poses and facial expressions.⁴² In light of this work, we realized that our wall of faces needed to be able to reflect the idiosyncrasies of the photographs, to acknowledge the self-representation within them (particularly early ones used before the administrative processes became more standardized), and to avoid assembling a gallery of mug shots. Therefore, we decided to leave the images at the different sizes they were, rather than resizing them for consistency. This, together with widening out the crop, allowed more of the person’s clothing, hairstyle, and background to be seen.

While the Real Face of White Australia is far from perfect, finding ways of representing agency has been important, particularly as massed groupings of portrait photographs are often associated with memorials as well. A “wall of faces” in the 9/11 Memorial Museum in New York displays photos of the nearly 3,000 people who died in the attacks “to try and communicate the scale of human loss.”⁴³ The United States Vietnam Veterans Memorial Fund has created an online “wall of faces” linked to profiles of individual service people killed in the war.⁴⁴ And the walls of one building at the Tuol Sleng Museum of Genocide in Cambodia are covered with photographs of victims, as is the ceiling of the Hall of Names in the Yad Veshem Holocaust History Museum in Jerusalem.⁴⁵ Yet the Real Face of White Australia is not a memorial. The people in the photos suffered oppression under the White Australia policy, but casting them as victims ignores their efforts to negotiate the system, to fight against its restrictions, to simply live their lives. This is a challenge we continue to grapple with, but perhaps part of the answer lies within the photos themselves.

Jenny Edkins suggests that despite conscious attempts to read meanings into portrait photographs, there are other, more visceral responses: “We are not merely passive spectators, but intimately involved, not separate be-

ings, but inevitably interconnected.⁴⁶ A face in a photograph, she suggests, can reach us in ways that challenge systems of authority and power that bear a sense of connection and obligation. Perhaps the faces on our wall can speak for themselves?

Access Against the Grain

In our initial blog posts about the Real Face of White Australia, we described it as a finding aid. Despite some people's concerns about context, all the photos are linked both to an uncropped image of the full exemption certificate and to further file details in RecordSearch, allowing users to navigate records in a different way. As Barbara Fister noted in a post about Tim's NDF presentation:

In a sense he's reverse-engineering the bureaucracy that once determined who was a proper Australian and is using the record-keeping used to control and oppress people to restore their history. He's also taking what cultural institutions do—preserve, sort, interpret, and present culture—and reorganizing it using different rules.⁴⁷

Archival descriptive systems tend to be arranged in a hierarchy—from collections to parts. While keyword searching allows discovery across the hierarchy, items remain fixed in a matrix of significance, context, and containment. Mitchell Whitelaw's Series Browser, for example, brings the properties of the containers to the surface, allowing users to see relationships across the whole collection.⁴⁸ Technologies that detect features in images or text, that aggregate and analyze existing metadata, allow us to turn descriptive hierarchies inside out. Within the National Archives our faces were locked away in photographs, themselves parts of larger digital images representing documents, contained in files, and organized in series. The Real Face of White Australia brought these buried features to the surface while retaining their archival context.

We could have manually cropped images from an assortment of files to create an exhibition of faces, but machine processing added the power of scale and the possibility of serendipity. As reactions to the wall have highlighted, the sheer number of faces, arranged in a seemingly endless array, carried both political critique and emotional engagement. Even Kate, who knows the records well, could observe new things through the machine's computational gaze and contemplate new research methodologies

for questions we did not know to ask before. The very lack of curation of the original documents prompted new questions. For example, some viewers wondered about the preponderance of men and the absence of women. Where are the women? This is just one of many new questions revealed by the project.⁴⁹

In 2014 Tim updated our scripts to use the latest version of OpenCV and applied them to a very different set of images—photographs from Trove’s massive collection of digitized Australian newspapers.⁵⁰ The quality of these images is often poor and many contained no people, but the object detection module again worked its magic. This time the script looked not only for faces, but for eyes within those faces using another pretrained classifier. From a sample set of 12,000 photos Tim extracted around 800 faces and 1,000 eyes.

The interface for *Eyes on the Past*, built using the Python microframework Flask and MongoDB, presents a random selection of eyes, slowly blinking on and off. Clicking on an eye reveals the full face and the source of the image. Clicking again on the caption opens the full newspaper article in Trove. Where the *Real Face of White Australia* overwhelms with scale and meaning, *Eyes on the Past* is minimal and mysterious. It emphasizes absence, and the fragility of our connection with the past, even while it provides a new way of exploring the digitized newspapers. Some have found it beautiful; others just think it is creepy.

There is something glorious and exciting in the fact that the same technology can result in such different resources. Object detection cracks open images, treating them as assemblages to be queried and manipulated. New questions emerge and new experiences are possible. But these very technologies are also deeply embedded in modern systems of surveillance. While we explore the creative possibilities of facial detection, we should not ignore the historical threads that connect our own tools to the workings of discriminatory regimes like the *White Australia* policy.⁵¹ The ability to identify, to label, and to separate offers power to those who would control us. Under the computer’s gaze we can, like Charles Yee Wing, all be treated just like criminals.

Charles Yee Wing’s trip to China in 1911 was neither his first nor last dealing with the bureaucracy of *White Australia*. With a transnational business empire and political interests that stretched across Australia, New Zealand, Fiji, the United States, Hong Kong, and China, Yee Wing made a dozen or so journeys from Australia between the 1890s and 1920s.⁵² The paperwork kept by the Australian government on Yee Wing’s many over-

seas trips documents the tightening laws, policies, and administrative procedures over this period, but it also shows how he and his family pushed back against the system as regulations grew stricter.

Yee Wing was often accompanied on his travels by his white Australian wife, Susan Beck, or some of their many children. Eldest child Mabel first went overseas with her parents in 1903 at age three, and twenty-five years later displayed the same indignant spirit as her father when officials questioned her identity on returning home from New Zealand. Because she looked “Chinese,” Mabel was not permitted to leave the ship with the other passengers and was detained for some time while a Customs inspector assessed her right to enter Australia. In fact Mabel held an Australian passport, and had done so since a trip to China almost a decade earlier, but she did not initially present it as identification. As her solicitor wrote in a letter of complaint to the Collector of Customs, “she made the usual Declarations as to her place of birth, from which it should clearly have appeared that she was a natural born British Subject and was entitled to enter Australia without question.” Instead she was submitted to “indignities” and “humiliations.”⁵³

While we cannot deny the politics of the technologies we use, like Charles and Mabel Yee Wing we can find opportunities for resistance, subversion, and play. The Real Face of White Australia displays photos extracted from the existing record-keeping system, but what if we turned this around? On a whim we created another RecordSearch hack—a userscript that queries our database of faces and inserts them back into RecordSearch results.⁵⁴ The faces appear just alongside the archival metadata as if they’re bubbling up from records below. It is a hack that offers no improvements to the functionality of RecordSearch, but by seeing the faces of those who confronted discrimination, it adds a level of understanding because it can make us *feel* differently. Maybe this is what happens when instead of just files and documents, we can see the people inside.

Notes

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