Empowering the Human Resources Industry with AI and Natural Language Processing

Alejandro Jesús Castañeira Rodríguez,

Principal Data Scientist

JANZZ.technology

Swizerland

swiss made software

AGENDA

Topics	
1 - Company description	3’
2 - Challenges in current recruitment processes	4’
3 - HR data representation	6’
4 - Algebra with HR concepts and Janzz Ontology	11’
5 - Complete End-to-End System Architecture	14’
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8 - Demo and Acknowledgements	29’

JANZZ.technology

JANZZ.technology is a **Swiss technology and consulting company** active in the field of semantic job and skills classifying and matching, and the use of **complex occupation data.**

We offer **SaaS/Cloud solutions as well as standard on-premise and white-label products in up to 40 languages** for modeling, analyzing, and **utilizing big data on job portals, at governmental or state-level organizations and public employment services (PES), but also for social and career networks, and company job sites and HR applications.**

Using the **latest semantic technologies to precisely parse, classify and match occupations/job titles, qualifications, hard and soft skills across different languages.** We aim to alleviate the matching problems associated with **asymmetric search mechanisms** in (digital) job markets.

JANZZ.technology solutions excel by taking a cognitive computing approach and effectively **turn big data into smart data.**

Our customers are PES and governments in the Americas, EMEA and Asia, technology and software providers, as well as blue chip companies.

RECRUITING & JOB SEARCHES

WHY THESE ARE STILL RELEVANT BUT UNSOLVED PROBLEMS?

85%

of all working persons are constantly looking for a new job
(passively: 73%, actively: 12%)

Source: LinkedIn

37%

of time spent in the hiring process goes to the hiring manager's review of an average résumé.

52%

of talent acquisition leaders say the hardest part of recruitment is screening candidates from a large applicant pool

Source: Ideal

A 250+ billion market

And still no functioning end-to-end processes. Automation remains low, quality of even simple results and processes mostly insufficient, often biased or completely useless.

Source: OECD

80%

of all public administrations and public employment services around the world do not yet have modern tools and technologies to cope with the urgent digital transformation of their labor markets or to systematically manage the reskilling of their labor force.

56%

of the recruiters say they can't make good hires because of lengthy hiring procedures

82%

of the fortune 500 executives don't believe that their companies recruit highly talented people

76%

hiring managers say that attracting top talent is their greatest challenge

54%

employers currently have open positions for which they can't find qualified candidates. 35% of their positions that stay open for 12 weeks or longer.

Sources: MRI Network, McKinsey, Glassdoor, Careerbuilder

Lack of Data Analytics Capabilities

Only 7% of the HR Professionals and Labor/Employment/Education Market Experts who have people analytics capability in their function are optimizing their usage of analytics.

THE ASSESSMENT OF SIMILARITY
TYPICAL EXAMPLES OF DAILY RECOMMENDATIONS …

Executive Creative Director

- Senior Director / Head of Health Economics
- **Director Financial Planning and Analysis & M&A, EMEA**
- Applications Supporter / System Specialist
- Senior Monitoring Architect
- Head Information Management Foundations
- **Head of Procurement**
- Corporate Director Business Development – Strategic Products
- …

Film & Video Producer

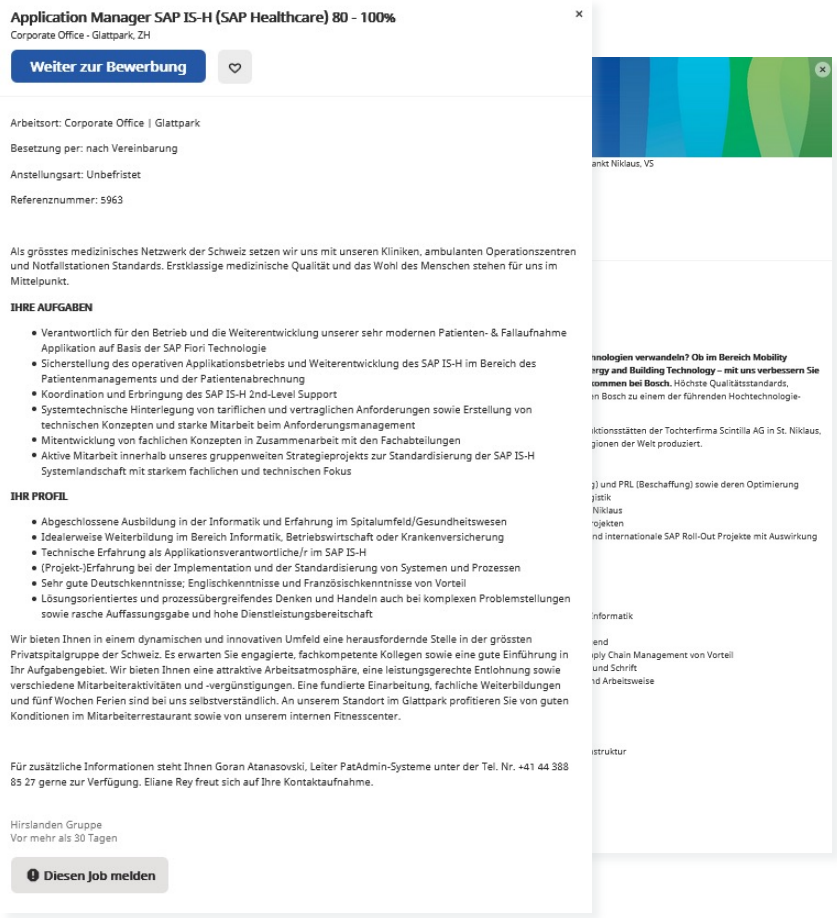
- General practitioner for own medical office
- Associate Director for a fast-growing industry
- Senior Community Manager, chemicals industry
- Food Safety, Quality & Purchase Manager
- **Senior Underwriter Mining & Energy Onshore**
- Document Control Coordinator
- EHS Specialist
- …

Graduate in Human Rights and International Relations

- Church Officer
- **Meat Industry Expert**
- Travel Agent
- Social Media Guru
- Tech Evangelist
- **Medical Officer – Specialized in TB**
- Supply Chain Management Expert
- …

Source: LinkedIn

HR DATA
NEED FOR BETTER REPRESENTATIONS



Application Manager SAP IS-H (SAP Healthcare) 80 - 100%

Corporate Office - Glattpark, ZH

Weiter zur Bewerbung

Arbeitsort: Corporate Office | Glattpark

Besetzung per: nach Vereinbarung

Anstellungsart: Unbefristet

Referenznummer: 5963

Als grösstes medizinisches Netzwerk der Schweiz setzen wir uns mit unseren Kliniken, ambulanten Operationszentren und Notfallstationen Standards. Erstklassige medizinische Qualität und das Wohl des Menschen stehen für uns im Mittelpunkt.

IHRE AUFGABEN

- Verantwortlich für den Betrieb und die Weiterentwicklung unserer sehr modernen Patienten- & Fallaufnahme Applikation auf Basis der SAP Fiori Technologie
- Sicherstellung des operativen Applikationsbetriebs und Weiterentwicklung des SAP IS-H im Bereich des Patientenmanagements und der Patientenabrechnung
- Koordination und Erbringung des SAP IS-H 2nd-Level Support
- Systemtechnische Hinterlegung von tariflichen und vertraglichen Anforderungen sowie Erstellung von technischen Konzepten und starke Mitarbeit beim Anforderungsmanagement
- Mitentwicklung von fachlichen Konzepten in Zusammenarbeit mit den Fachabteilungen
- Aktive Mitarbeit innerhalb unseres gruppenweiten Strategieprojekts zur Standardisierung der SAP IS-H Systemlandschaft mit starkem fachlichen und technischen Fokus

IHR PROFIL

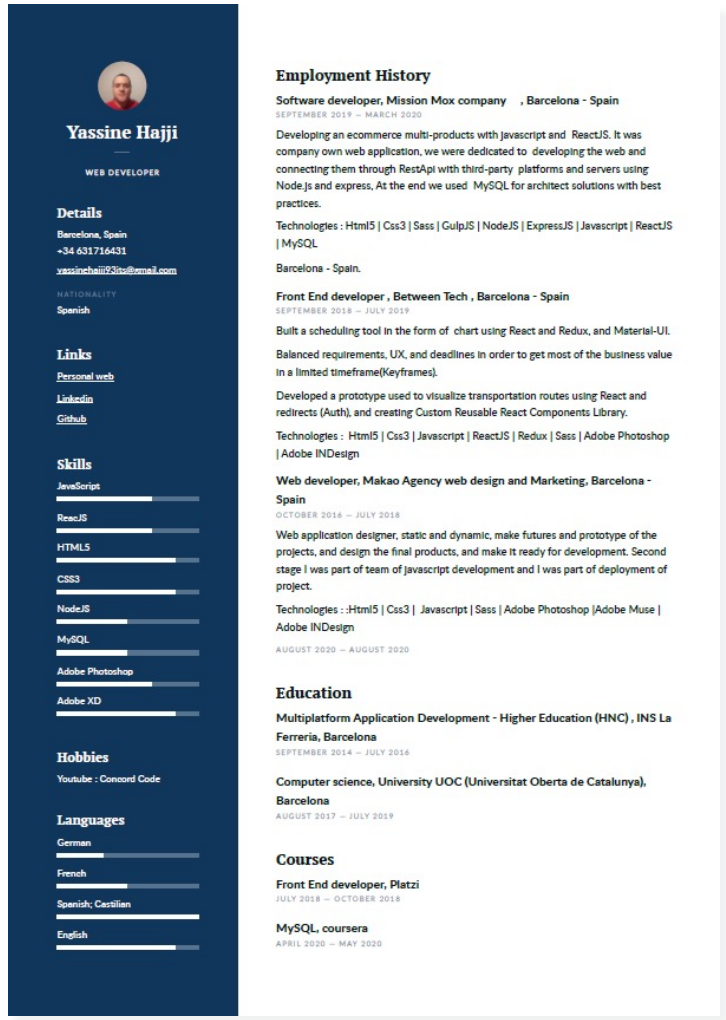
- Abgeschlossene Ausbildung in der Informatik und Erfahrung im Spitalumfeld/Gesundheitswesen
- Idealerweise Weiterbildung im Bereich Informatik, Betriebswirtschaft oder Krankenversicherung
- Technische Erfahrung als Applikationsverantwortliche/r im SAP IS-H
- (Projekt-)Erfahrung bei der Implementation und der Standardisierung von Systemen und Prozessen
- Sehr gute Deutschkenntnisse; Englischkenntnisse und Französischkenntnisse von Vorteil
- Lösungsorientiertes und prozessübergreifendes Denken und Handeln auch bei komplexen Problemstellungen sowie rasche Auffassungsgabe und hohe Dienstleistungsbereitschaft

Wir bieten Ihnen in einem dynamischen und innovativen Umfeld eine herausfordernde Stelle in der grössten Privatspitalgruppe der Schweiz. Es erwarten Sie engagierte, fachkompetente Kollegen sowie eine gute Einführung in Ihr Aufgabengebiet. Wir bieten Ihnen eine attraktive Arbeitsatmosphäre, eine leistungsgerechte Entlohnung sowie verschiedene Mitarbeiteraktivitäten und -vergünstigungen. Eine fundierte Einarbeitung, fachliche Weiterbildungen und fünf Wochen Ferien sind bei uns selbstverständlich. An unserem Standort im Glattpark profitieren Sie von guten Konditionen im Mitarbeiterrestaurant sowie von unserem internen Fitnesscenter.

Für zusätzliche Informationen steht Ihnen Goran Atanasovski, Leiter PatAdmin-Systeme unter der Tel. Nr. +41 44 388 85 27 gerne zur Verfügung. Eliane Rey freut sich auf Ihre Kontaktaufnahme.

Hirslanden Gruppe
Vor mehr als 30 Tagen

Diesen Job melden



Yassine Hajji

WEB DEVELOPER

Details

Barcelona, Spain
+34 631716431
yassinehajji93fs@gmail.com

NATIONALITY
Spanish

Links

Personal web
Linkedin
Github

Skills

JavaScript
ReacJS
HTML5
CSS3
NodeJS
MySQL
Adobe Photoshop
Adobe XD

Hobbies

Youtube : Concord Code

Languages

German
French
Spanish; Castilian
English

Employment History

Software developer, Mission Mox company , Barcelona - Spain
SEPTEMBER 2019 – MARCH 2020

Developing an ecommerce multi-products with Javascript and ReactJS. It was company own web application, we were dedicated to developing the web and connecting them through RestApi with third-party platforms and servers using Node.js and express, At the end we used MySQL for architect solutions with best practices.

Technologies : Html5 | Css3 | Sass | GulpJS | NodeJS | ExpressJS | Javascript | ReactJS | MySQL

Barcelona - Spain.

Front End developer , Between Tech , Barcelona - Spain
SEPTEMBER 2018 – JULY 2019

Built a scheduling tool in the form of chart using React and Redux, and Material-UI.

Balanced requirements, UX, and deadlines in order to get most of the business value in a limited timeframe(Keyframes).

Developed a prototype used to visualize transportation routes using React and redirects (Auth), and creating Custom Reusable React Components Library.

Technologies : Html5 | Css3 | Javascript | ReactJS | Redux | Sass | Adobe Photoshop | Adobe INDesign

Web developer, Makao Agency web design and Marketing, Barcelona - Spain
OCTOBER 2016 – JULY 2018

Web application designer, static and dynamic, make futures and prototype of the projects, and design the final products, and make it ready for development. Second stage I was part of team of javascript development and I was part of deployment of project.

Technologies : :Html5 | Css3 | Javascript | Sass | Adobe Photoshop |Adobe Muse | Adobe INDesign

AUGUST 2020 – AUGUST 2020

Education

Multiplatform Application Development - Higher Education (HNC) , INS La Ferreria, Barcelona
SEPTEMBER 2014 – JULY 2016

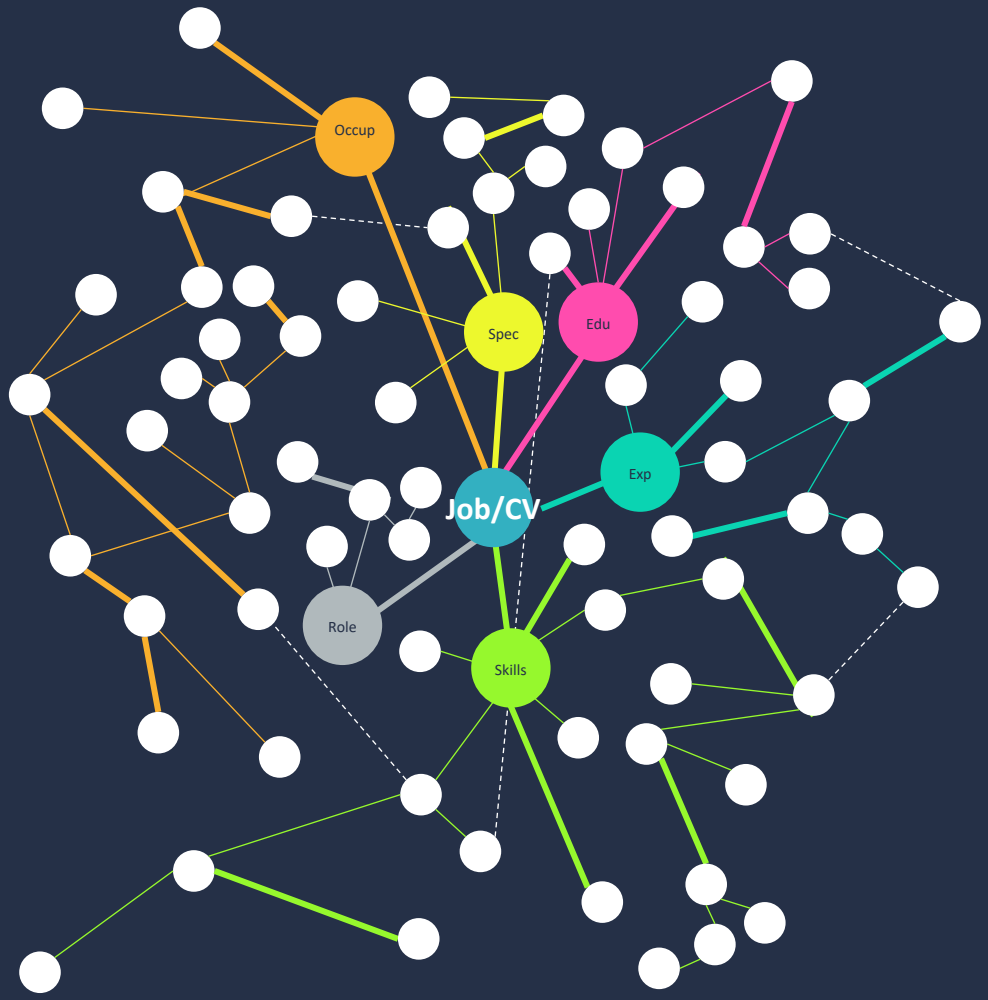
Computer science, University UOC (Universitat Oberta de Catalunya), Barcelona
AUGUST 2017 – JULY 2019

Courses

Front End developer, Platzi
JULY 2018 – OCTOBER 2018

MySQL, coursera
APRIL 2020 – MAY 2020

VECTOR – JANZZs
EXPLAINABLE, STRUCTURED, DESCRIPTIVE, SHARED

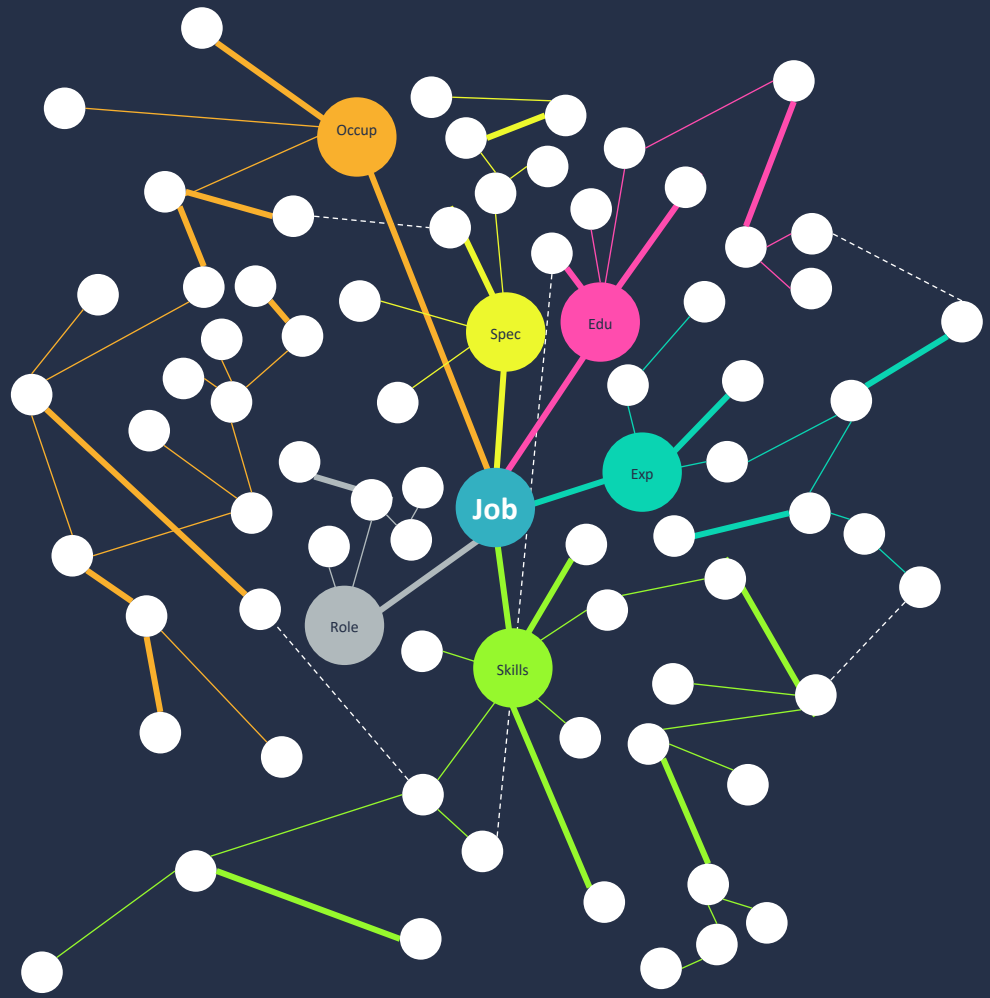


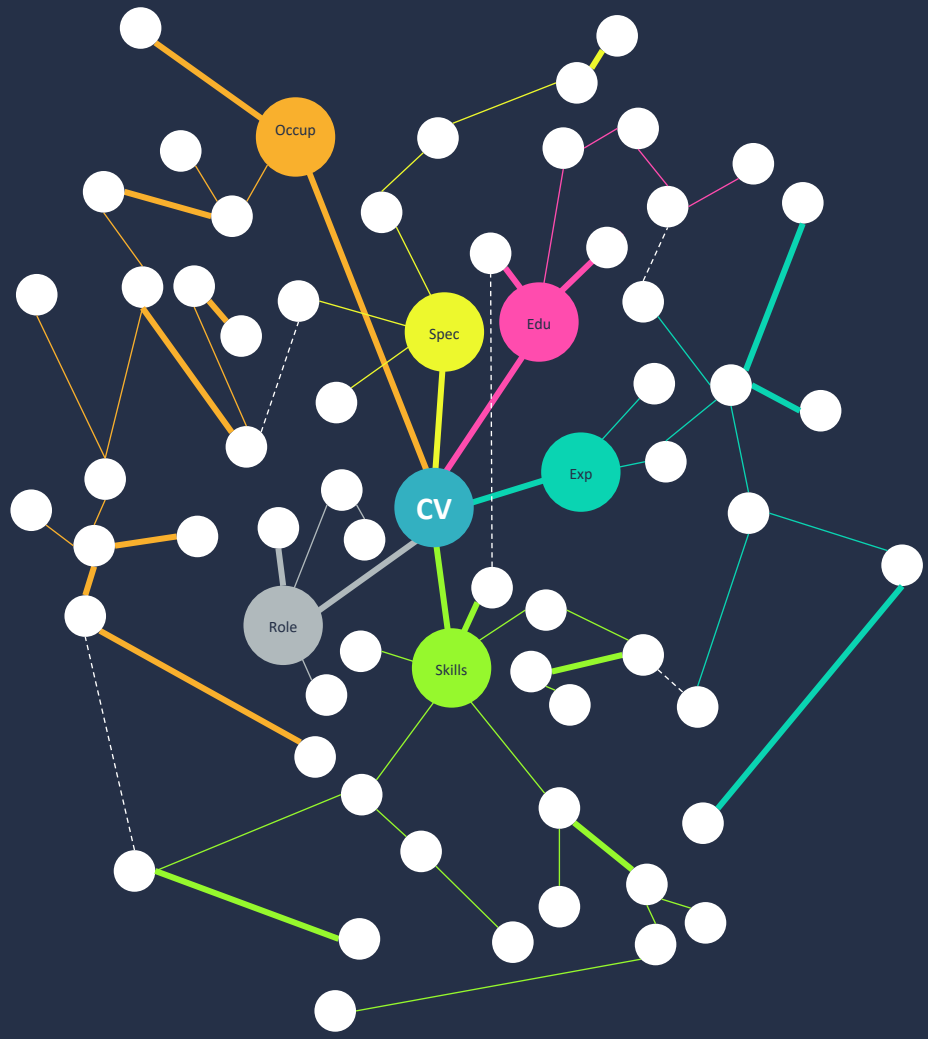
Field of Categories

- Occupation
- Role/Function
- Specialization
- Skills
- Soft skills
- Education
- Experience
- Supervisor
- Companies
- Place of work (GPE)
- Type of contract
- Availability
- Language
- Authorization
- Working condition
- Industry
- Salary
- Number of vacancies
- Social tags

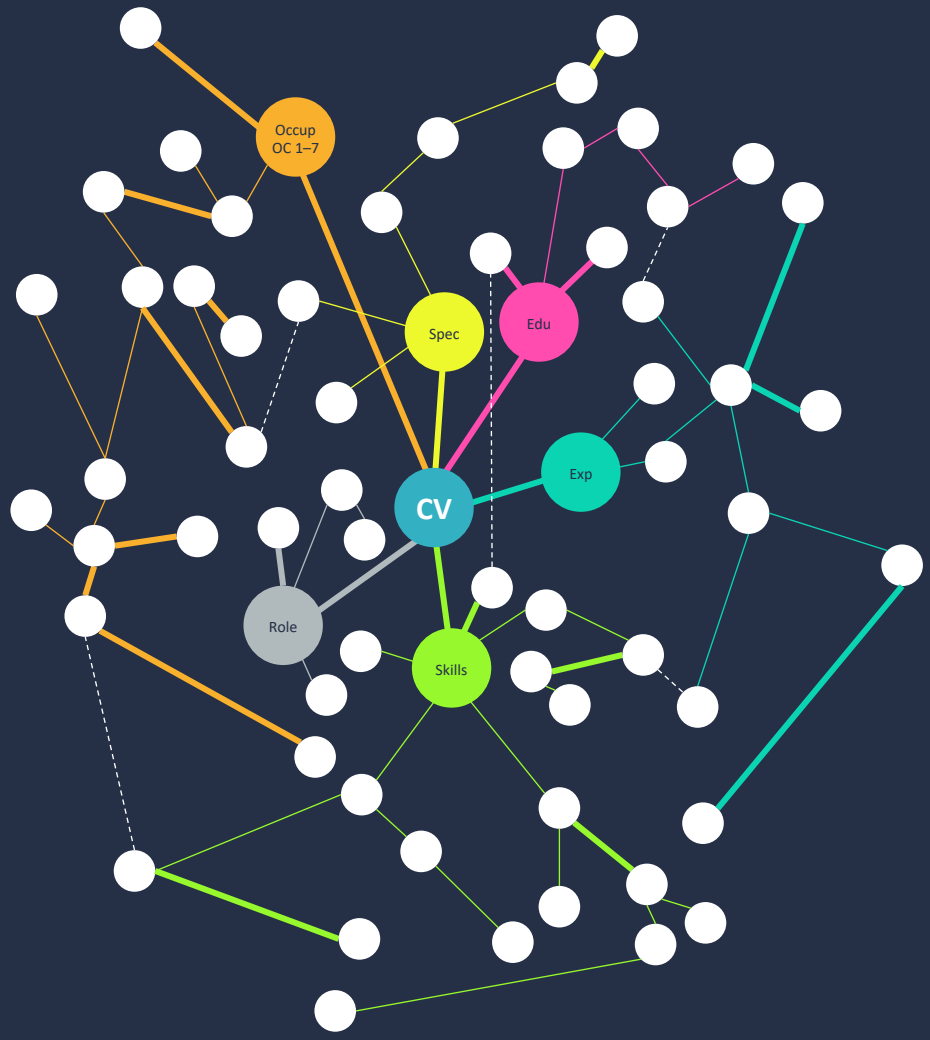
VECTOR – JANZZs

EXPLAINABLE, STRUCTURED, DESCRIPTIVE, SHARED





VECTOR – JANZZs
EXPLAINABLE, STRUCTURED, DESCRIPTIVE, SHARED



VECTOR – JANZZs
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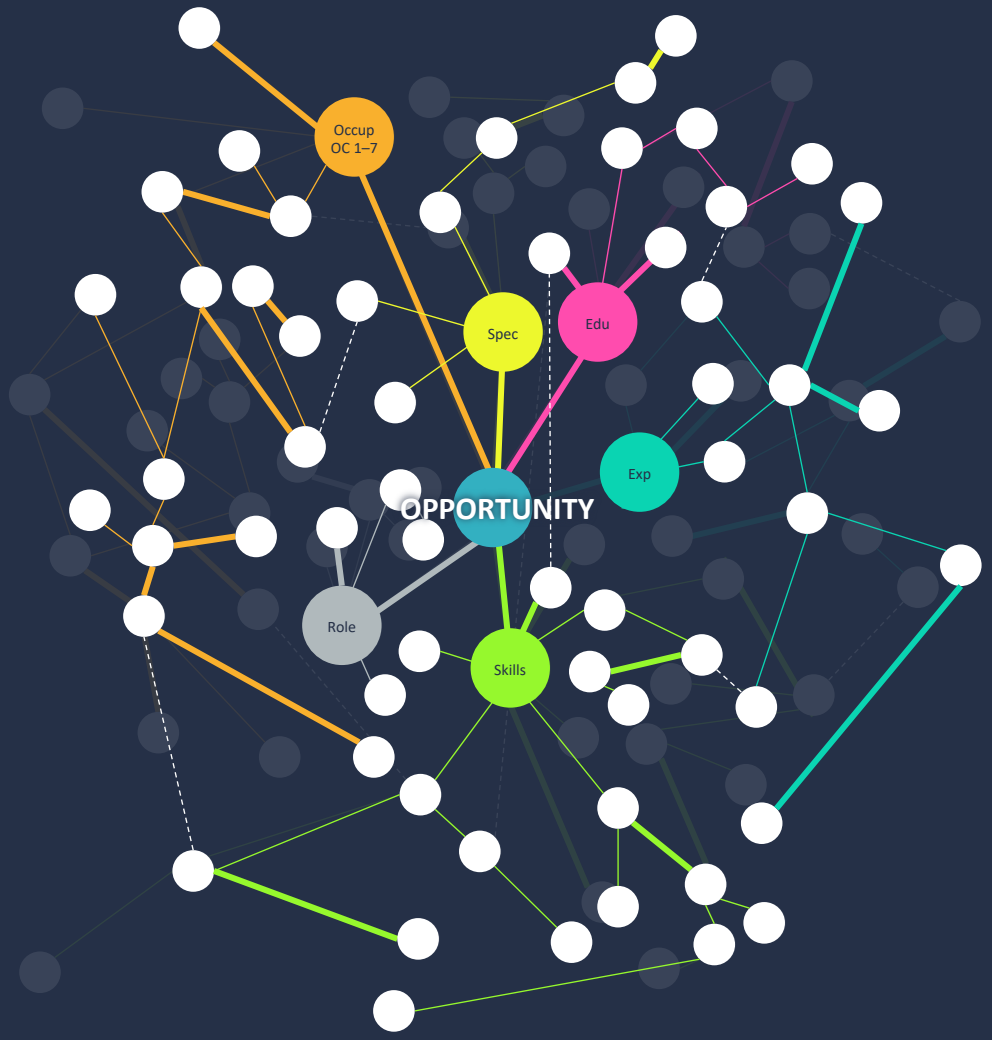


Match explain

Criterion	Match
Profession/Occupation	94%
Specializations	62%
Functions/Roles	71%
Skills/Competencies	87%
Soft skills	40%
Education/Qualifications	80%
Experience	74%
Languages	92%
Availability	✗
Contract type	✓
Place of work	✓
Industries	✓

Criteria not matching

My JANZZ

Specializations:
- My Specialization 1
- My Specialization 2

Soft skills:
- My Soft skill 1

Other JANZZ

Specializations:
- Other Specialization 1

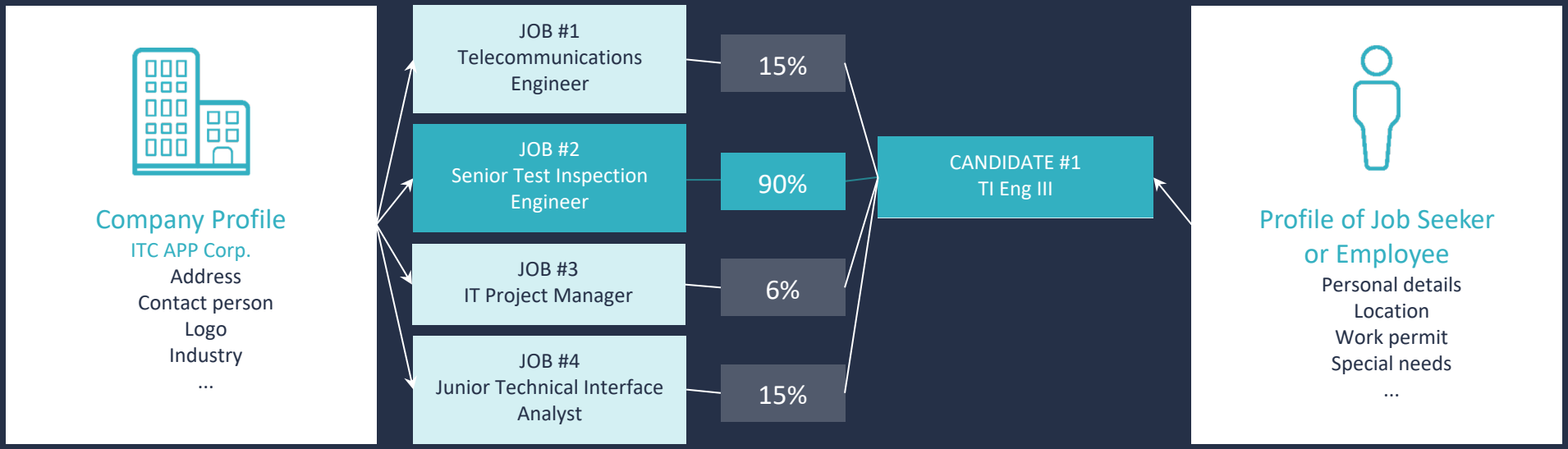
Skills/Competencies:
- Other Skill 1
- Other Skill 2

Languages:
- Other Language 1

Total match

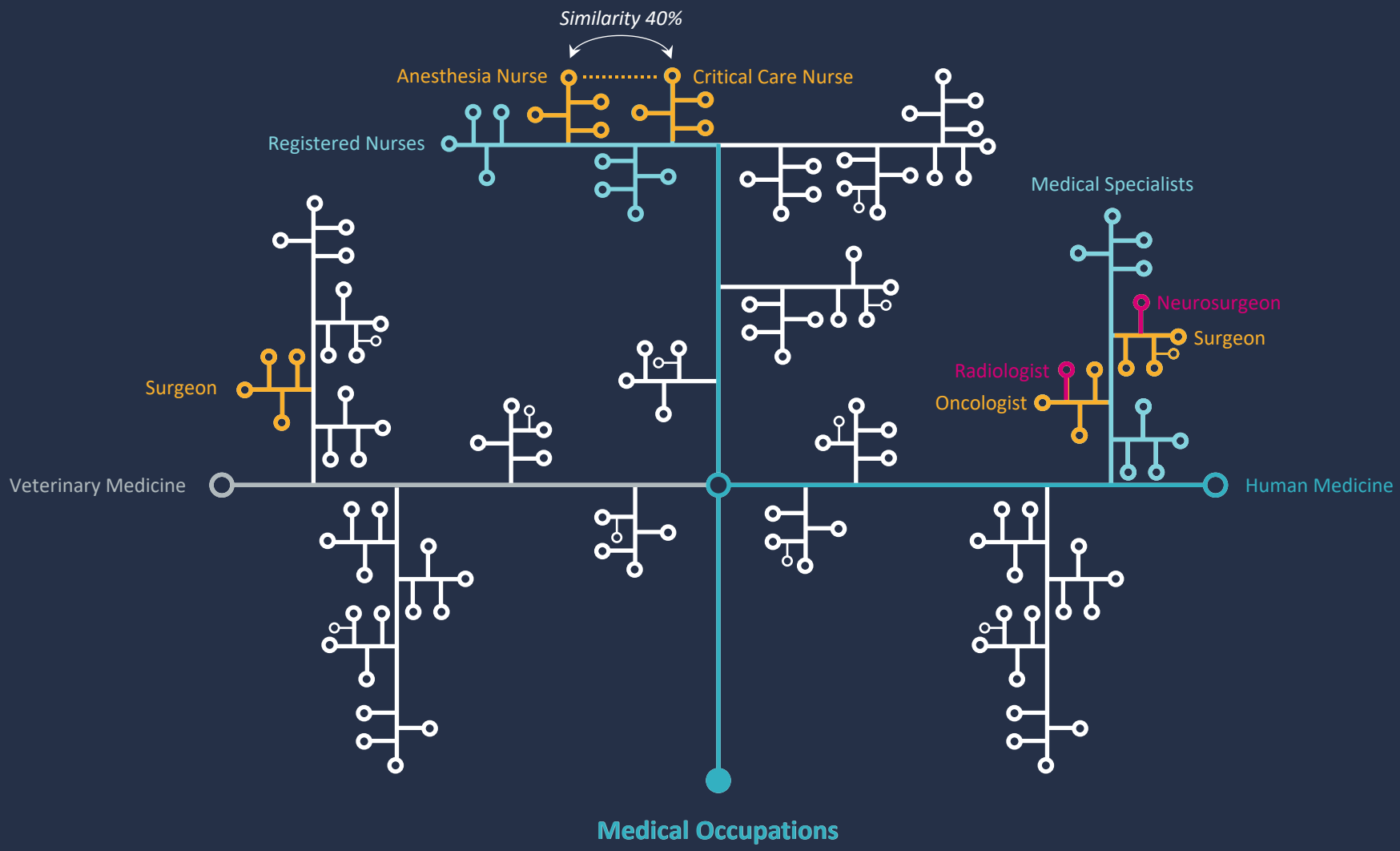
87%

ALGEBRA WITH HR CONCEPTS
HOW TO ADDRESS SIMILARITY BETWEEN ELEMENTS



KNOWLEDGE GRAPHS

CONCEPTS SIMILARITY DERIVES FROM A PROPER KG STRUCTURE



JANZZon! ONTOLOGY

WORLD'S LARGEST ONTOLOGY OF OCCUPATIONAL DATA

More than 300K hours spent in manual curation by domain experts (including Mechanical Turk, SML and DL (e.g. spaCy, Prodigy, etc.) approach)

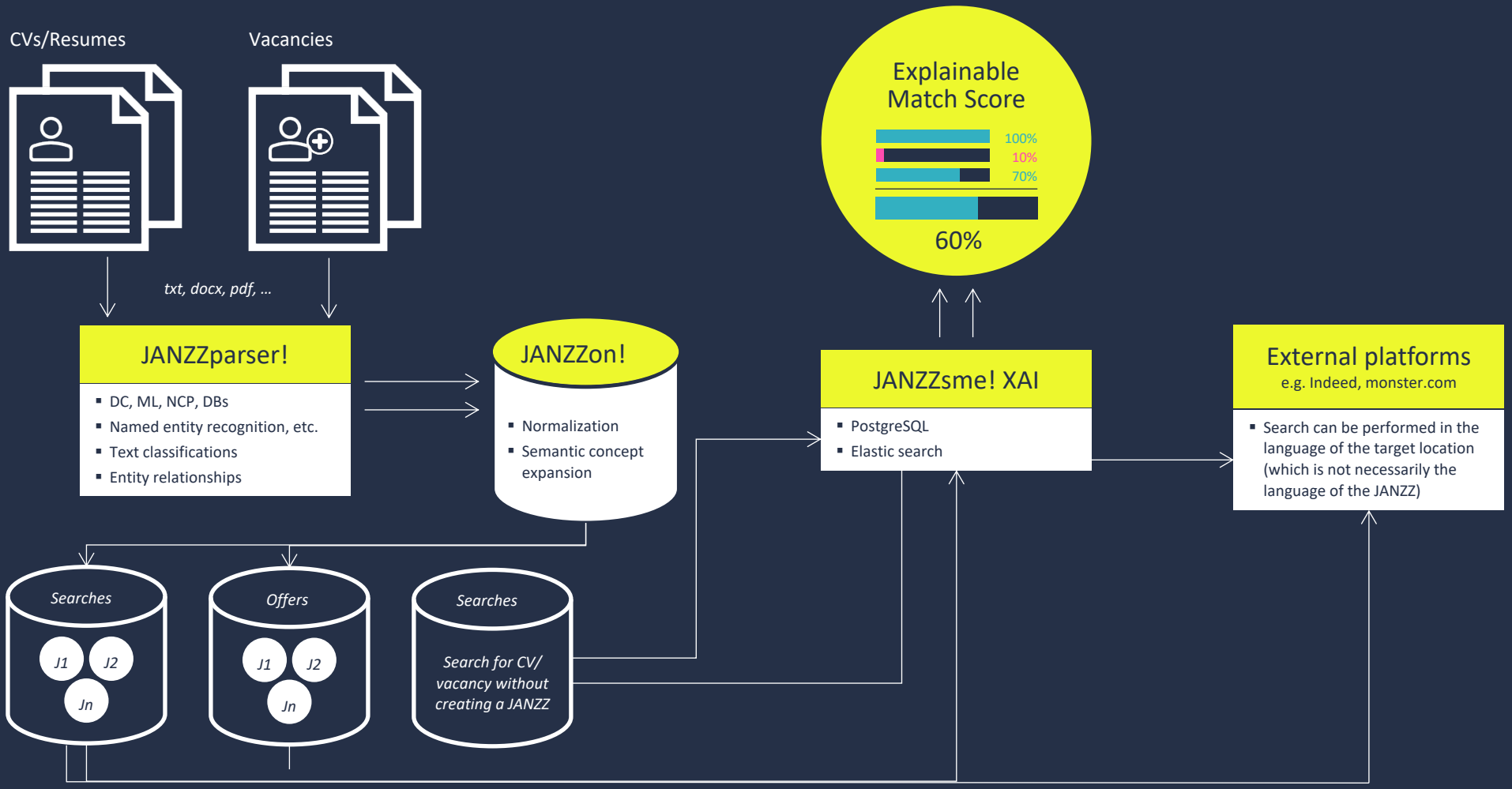
Over 140K occupations and 2M+ skills/certifications/educations across all industries and globally validated, catalogued, and related

Available in more than 40 languages with around ~ 1.5bn node relations

More than 150 standard and custom classifications and taxonomies mapped into the ontology/knowledge graph, e.g. O*NET, ESCO, ISCO-08, KldB 2010, JSOC, NOC-2016, SSOC, NAICS, MUPCS, EEO-1, LinkedIn skills, as well as numerous corporate specific taxonomies and vocabularies.

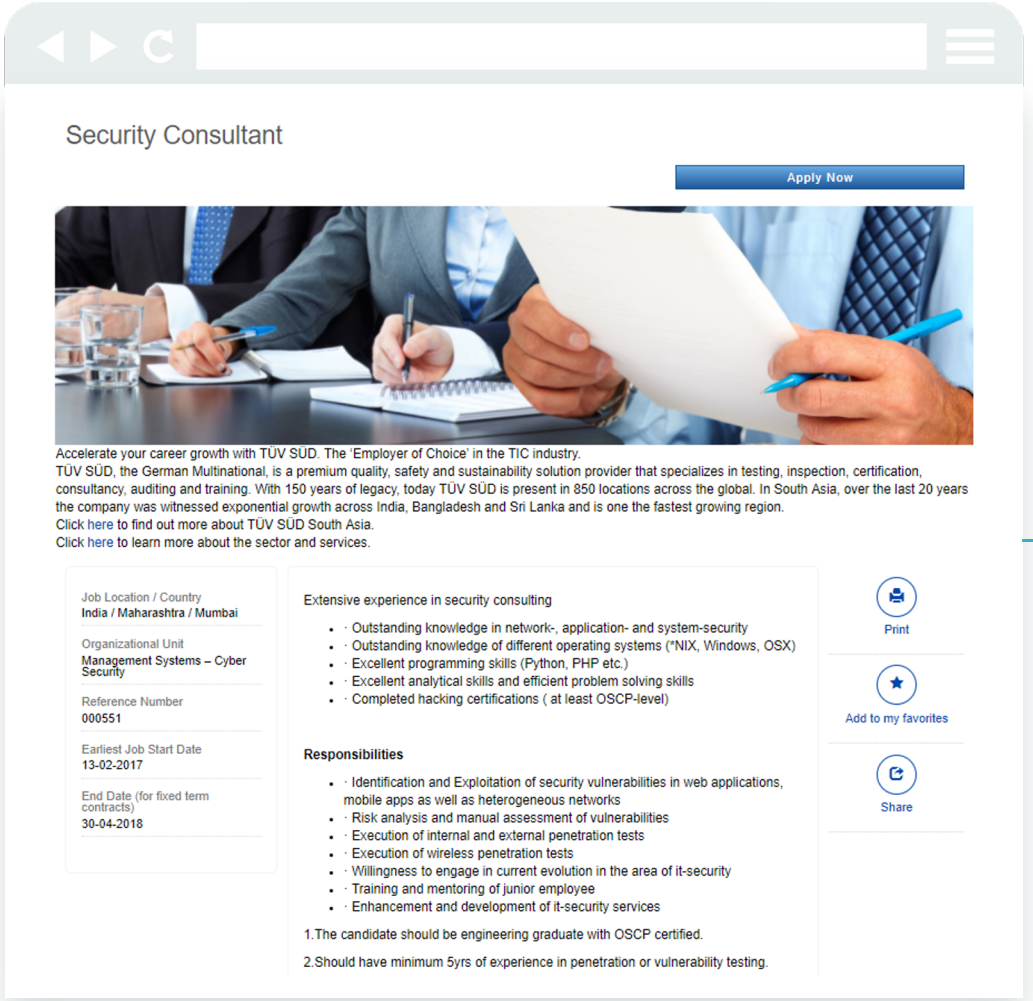
HUMAN RESOURCES RECOMMENDER SYSTEM

JANZZ.technology



FROM VARIABLE TEXT INPUT INTO STRUCTURED CONTENT

JANZZparser!



Security Consultant

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TÜV SÜD, the German Multinational, is a premium quality, safety and sustainability solution provider that specializes in testing, inspection, certification, consultancy, auditing and training. With 150 years of legacy, today TÜV SÜD is present in 850 locations across the global. In South Asia, over the last 20 years the company was witnessed exponential growth across India, Bangladesh and Sri Lanka and is one the fastest growing region.
Click here to find out more about TÜV SÜD South Asia.
Click here to learn more about the sector and services.

Job Location / Country
India / Maharashtra / Mumbai

Organizational Unit
Management Systems – Cyber Security

Reference Number
000551

Earliest Job Start Date
13-02-2017

End Date (for fixed term contracts)
30-04-2018

Extensive experience in security consulting

- · Outstanding knowledge in network-, application- and system-security
- · Outstanding knowledge of different operating systems (*NIX, Windows, OSX)
- · Excellent programming skills (Python, PHP etc.)
- · Excellent analytical skills and efficient problem solving skills
- · Completed hacking certifications (at least OSCP-level)

Responsibilities

- · Identification and Exploitation of security vulnerabilities in web applications, mobile apps as well as heterogeneous networks
- · Risk analysis and manual assessment of vulnerabilities
- · Execution of internal and external penetration tests
- · Execution of wireless penetration tests
- · Willingness to engage in current evolution in the area of it-security
- · Training and mentoring of junior employee
- · Enhancement and development of it-security services

1.The candidate should be engineering graduate with OSCP certified.

2.Should have minimum 5yrs of experience in penetration or vulnerability testing.

Print

Add to my favorites

Share

- IT Security Expert
- 5 years in penetration or vulnerability testing
- Engineering graduate
- Python, PHP
- Analytical & problem solving skills
- Mumbai, India
- 13 February 2017
- English

JANZZparser!

INFORMATION EXTRACTION FEATURES

1. More than 40 supported languages and dialects: Higher recall/precision. English, Spanish (Castilian, several Latin American variants), Norwegian (Bokmål, Nynorsk), German (3 localized versions: Germany, Switzerland, Austria), French, Portuguese (Portugal, Brazil), Italian and Dutch. Lower recall/precision. Arabic, Bulgarian, Chinese, Croatian, Czech, Danish, Estonian, Finnish, Greek, Hungarian, Irish, Latvian, Lithuanian, Polish, Romanian, Slovak, Slovenian, Swedish, Catalan, Basque, Thai, Indonesian, Tagalog, Hindi, Urdu, Malay and Vietnamese. Automatically detects language of documents.

2. Over 50 entity types (information categories) including occupation, function, specialization, companies, supervisor, skills, soft skills, language skills, education, experience, authorizations, industry, place of work, contract type, availability, salary, working conditions, publications, first / last name, date of birth /age, citizenship, email, address, telephone, references, social media, achievements, interests and more.

3. IT can successfully process the following document types: pdf, doc, json, docx, csv, tsv, txt, rtf, odf, xml, html and xlsx. Image documents are currently at the R&D stage.

4. Multiple granularity levels are determined for a several entity types through further information/context extracted from the document, e.g., proficiency in a given skill, language level, seniority degree etc. and also includes recording necessity of requirements: must have, nice to have, a plus.

5. Each supported language is backed by language-specific deep learning models which were trained to perform several Natural Language Processing tasks in order to structure the HR information, like Named Entity Recognition, Text Classification, Entity Relationships, etc.

JANZZparser!
NAMED ENTITIY RECOGNITION SYSTEM

We are hiring for the position of Specialized Sous Chef OCC .

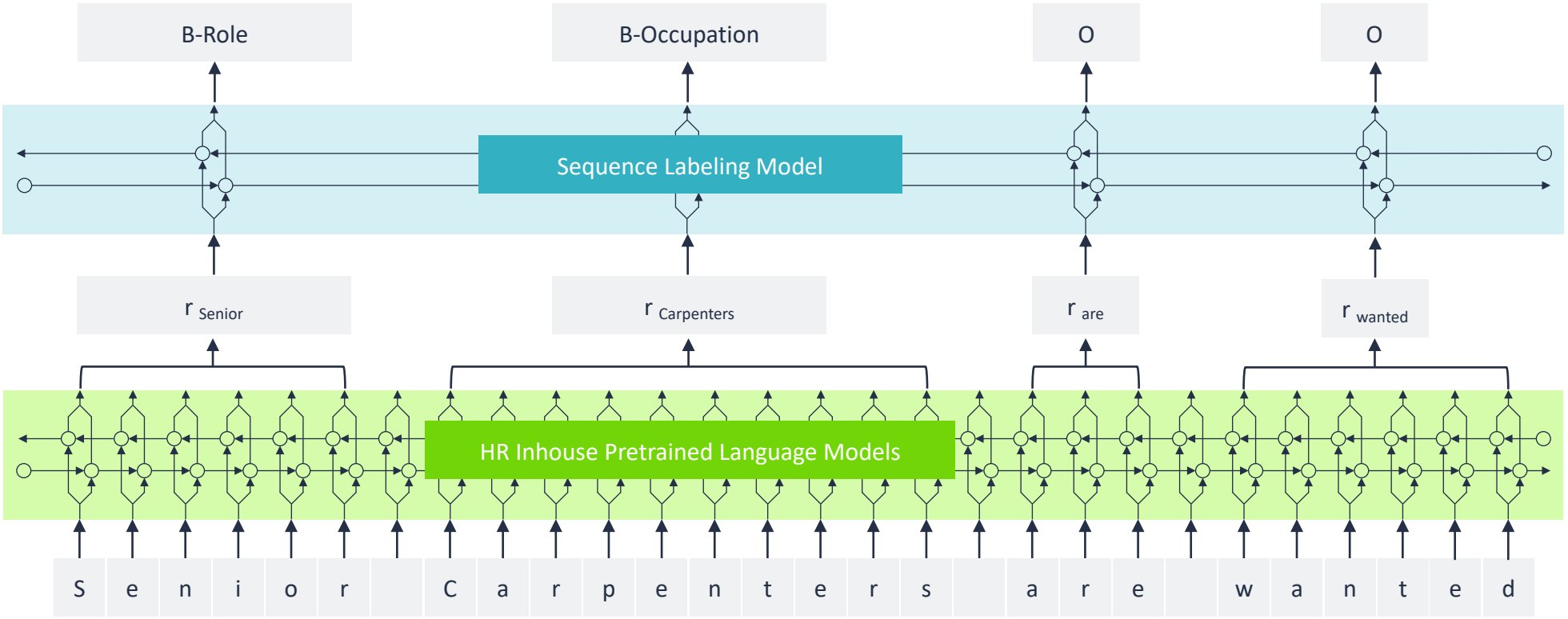
Bachelor in Food Research EDU , would be nice to have.

Lead dinner production SKILL and manage catering orders SKILL .

Team player SFS , exhibits initiative SFS and responsibility SFS .

NER ARCHITECTURE

CRF + PRETRAINED LANG MODELS IN HR DATA



JANZZparser!
SETTING HIGHER LEVELS OF GRANULARITY

Highly experienced in Software Development Tools. SKILL is a plus.

- → *Software Development Tools*
  - → *Level 4*
  - → *A PLUS*

Bachelor in Food Research EDU , would be nice to have.

- → *Bachelor Food Research*
  - → *Bachelor*
  - → *Nice to have*

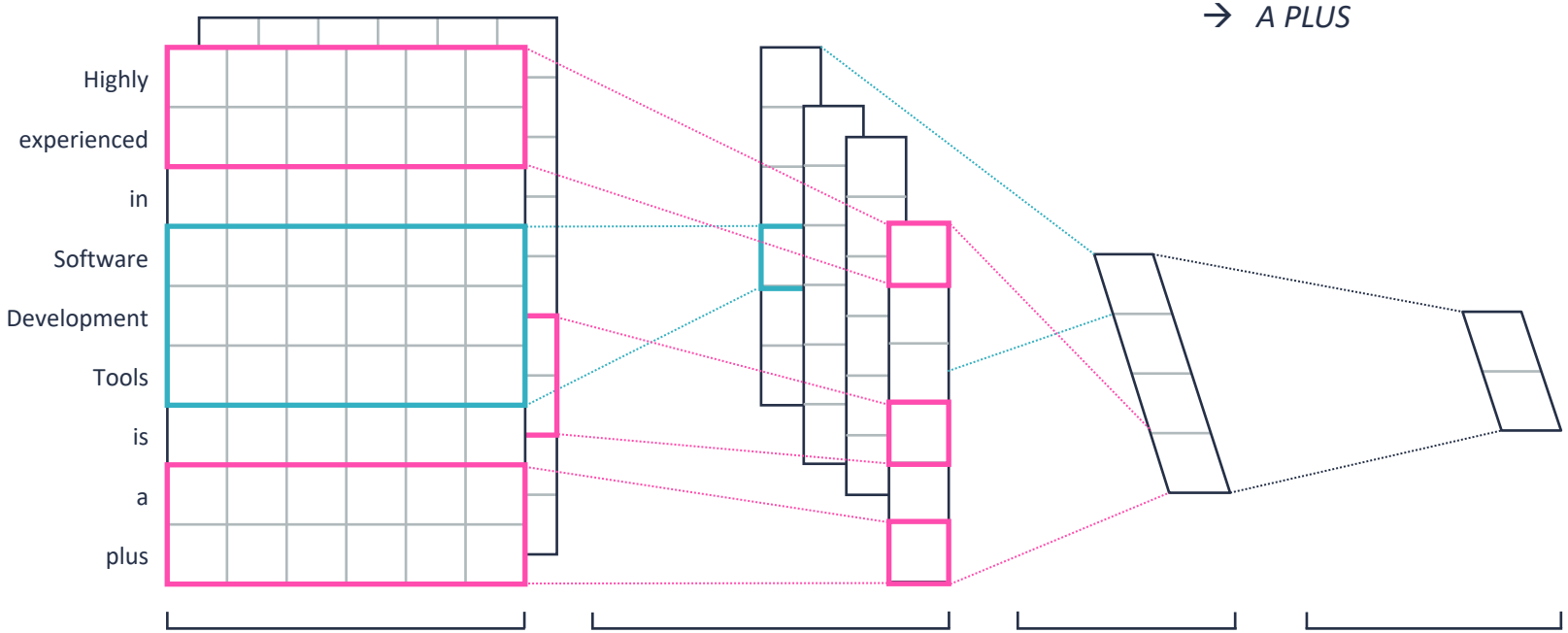
Minimum 3–4 years in a fast-paced kitchen, high-volume restaurant. EXP

- → *Hospitality/Gastronomy Industry*
  - → *Amount: Min. 3–4*
  - → *Type: years*
  - → *Is mandatory*

TEXT CLASSIFICATION ARCHITECTURE
MULTILINGUAL SELF-ATTENTION NEURAL NETWORKS

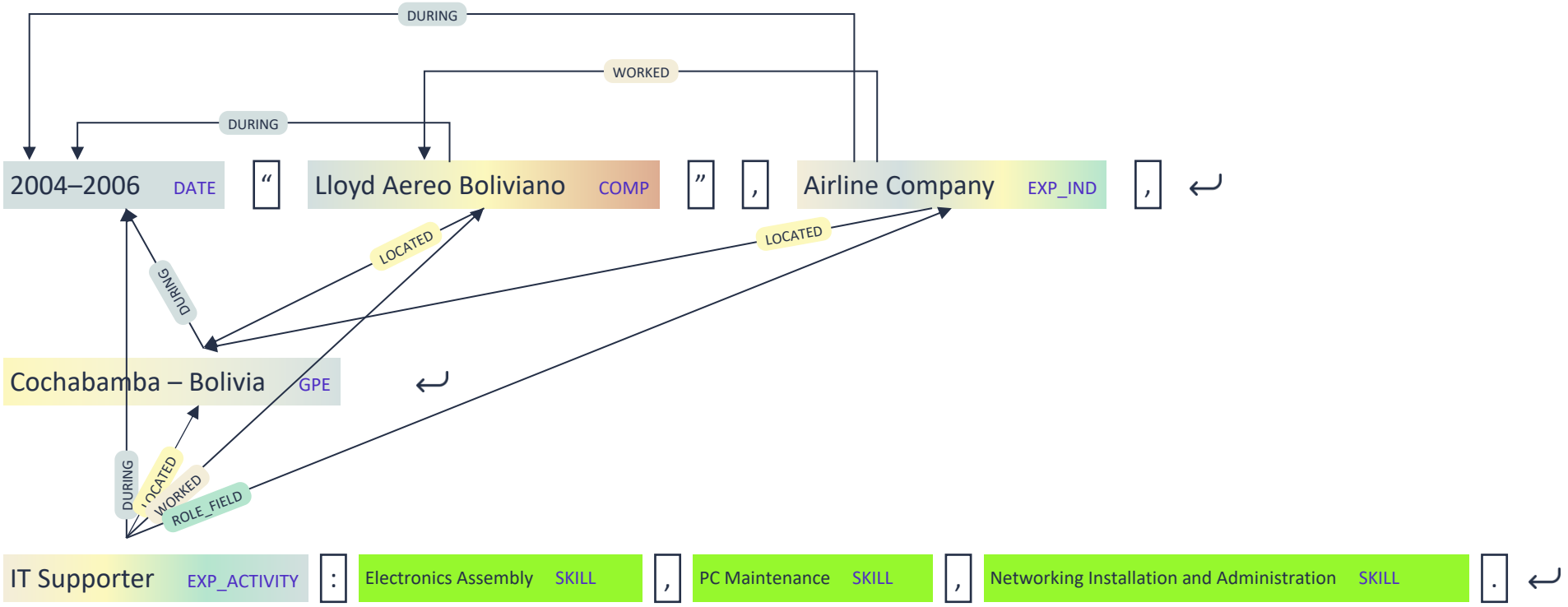
Highly experienced in Software Development Tools SKILL is a plus

→ *Software Development Tools*
→ *Level 4*
→ *A PLUS*



JANZZparser!

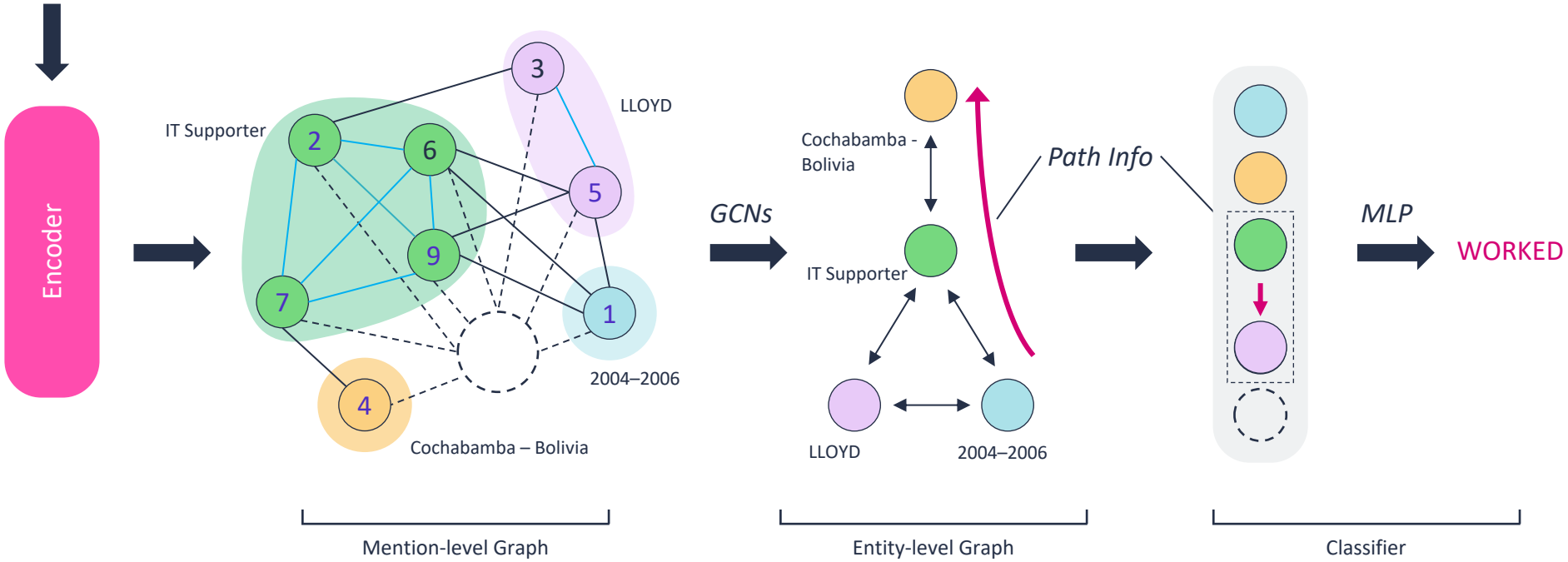
RELATIONSHIPS BETWEEN NAMED ENTITIES



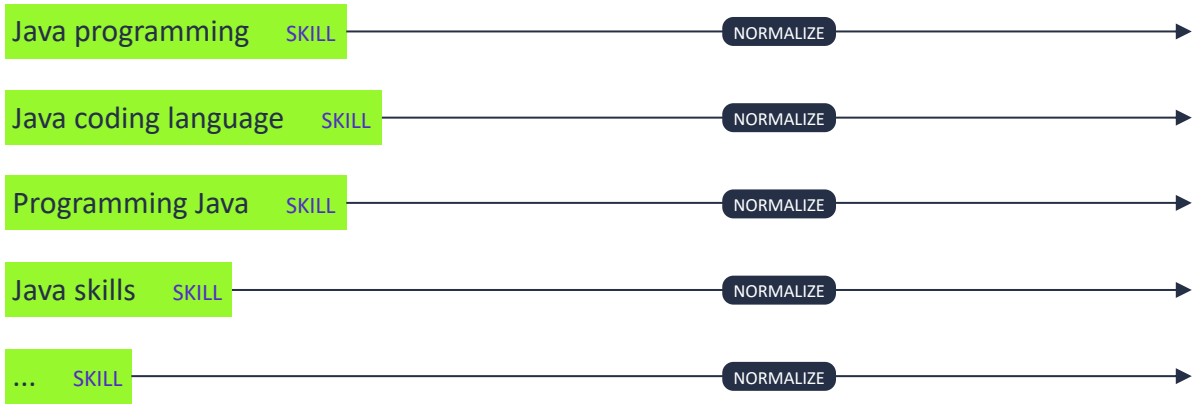
ENTITY RELATIONSHIPS ARCHITECTURE
GRAPH RE MODEL AT DOCUMENT LEVEL

Eldersburg , IT Supporter , LLOYD Aereo Boliviano , Cochabamba – Bolivia.

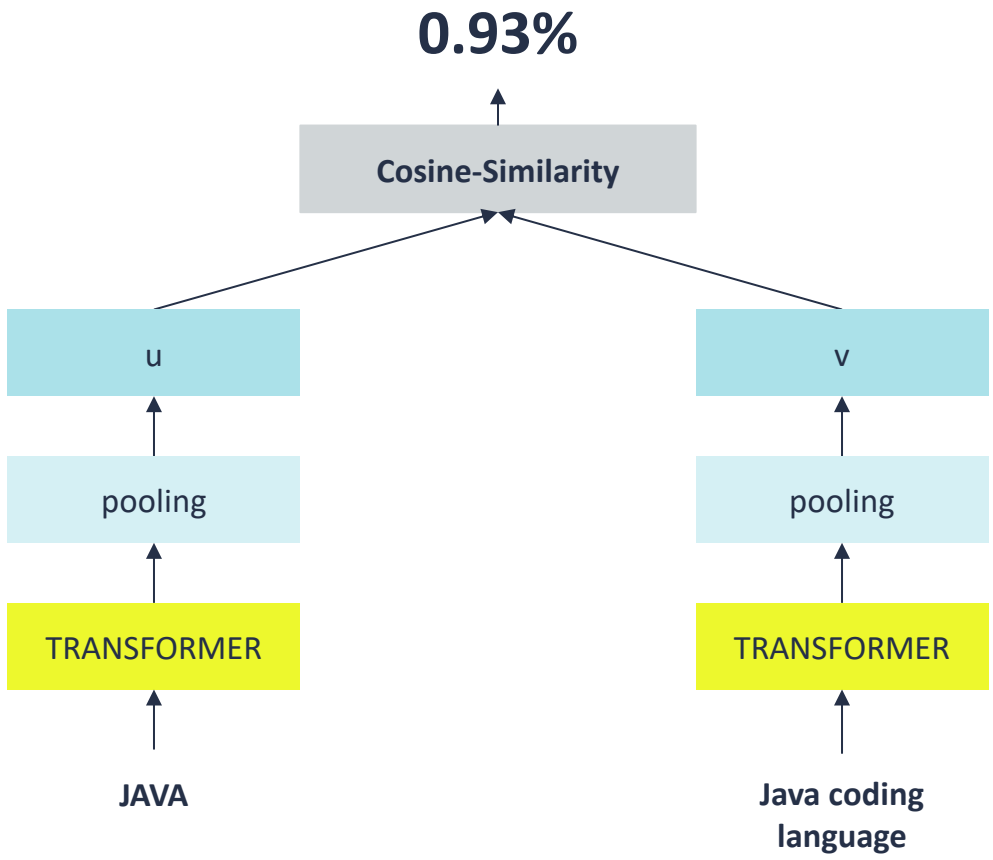
While working at LLOYD as a IT Supporter I had the opportunity to collaborate in a great team.



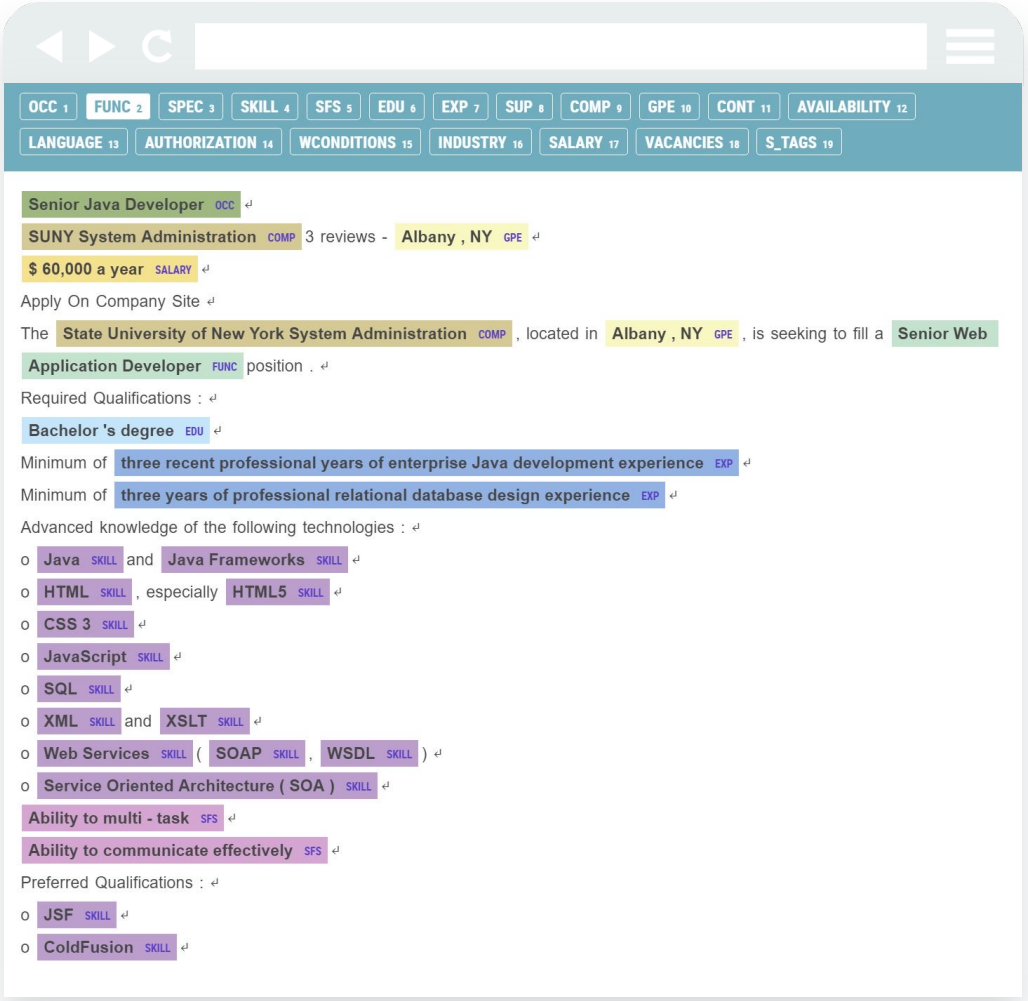
JANZZparser!
NORMALIZATION OF EXTRACTED TERMS



NORMALIZATION ARCHITECTURE
SEMANTIC SENTENCE ENCODERS

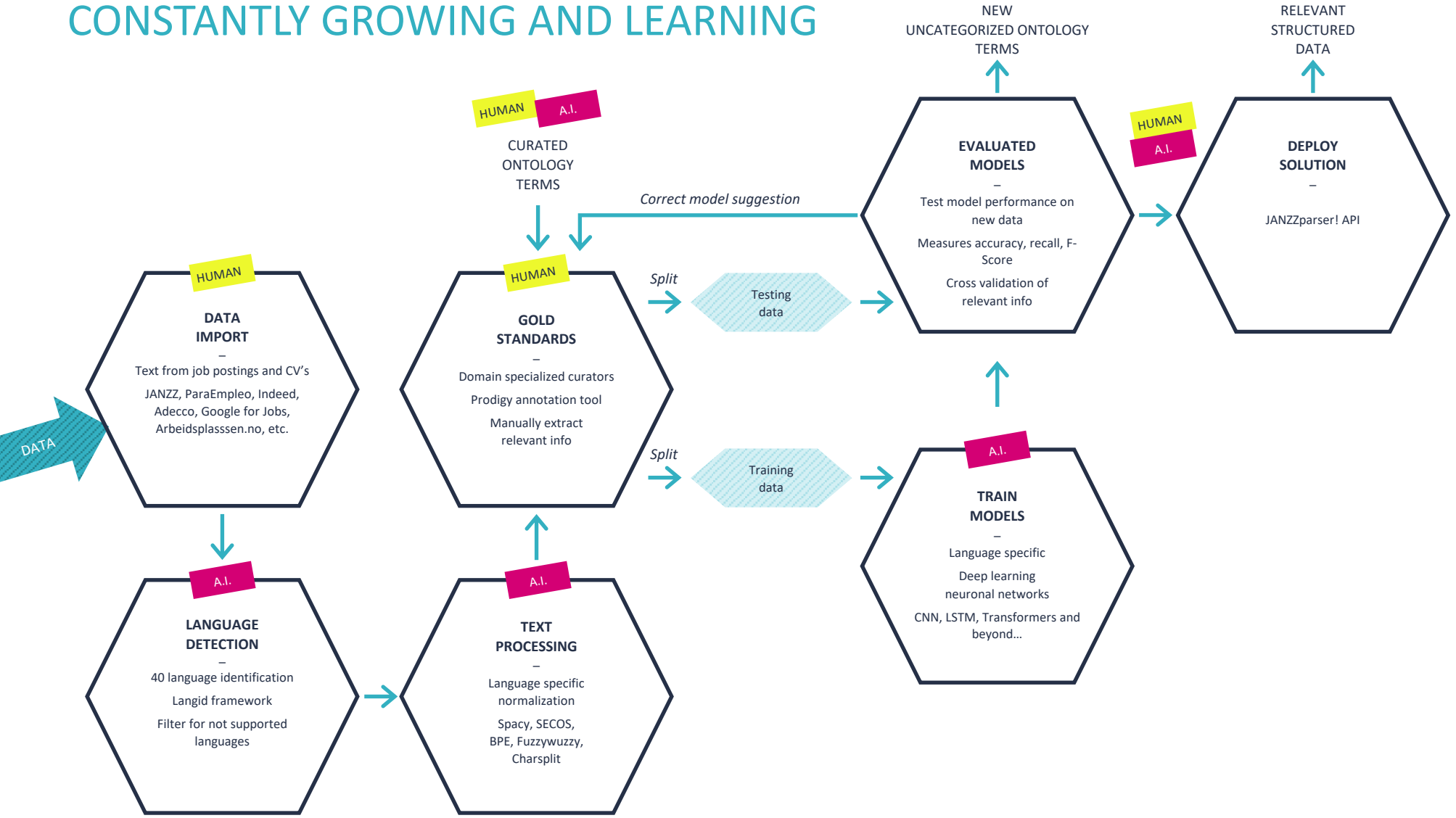


DATA COLLECTION
PRODIGY - ANNOTATION TOOL



DEVELOPMENT METHODOLOGY

CONSTANTLY GROWING AND LEARNING



SEARCH ENGINE
INDEXING-DOCUMENTS

Parser Output

Occupation
Skills
Softskills
Languages
Experiences
Education
...

Indexing

PostgreSQL

JANZZ Table					
Offer 104903					
Occupation	cid 123	cid 785			
Skills	cid 782	cid 392	cid 235	cid 681	cid 931
Soft skills	cid 521	cid 487	cid 197	cid 997	cid 682
Languages	cid 42	cid 381			
Experiences	cid 55	cid 992	cid 547	cid 80	
Education	cid 102	cid 647	cid 312		
...					
...					
...					

Elasticsearch Index

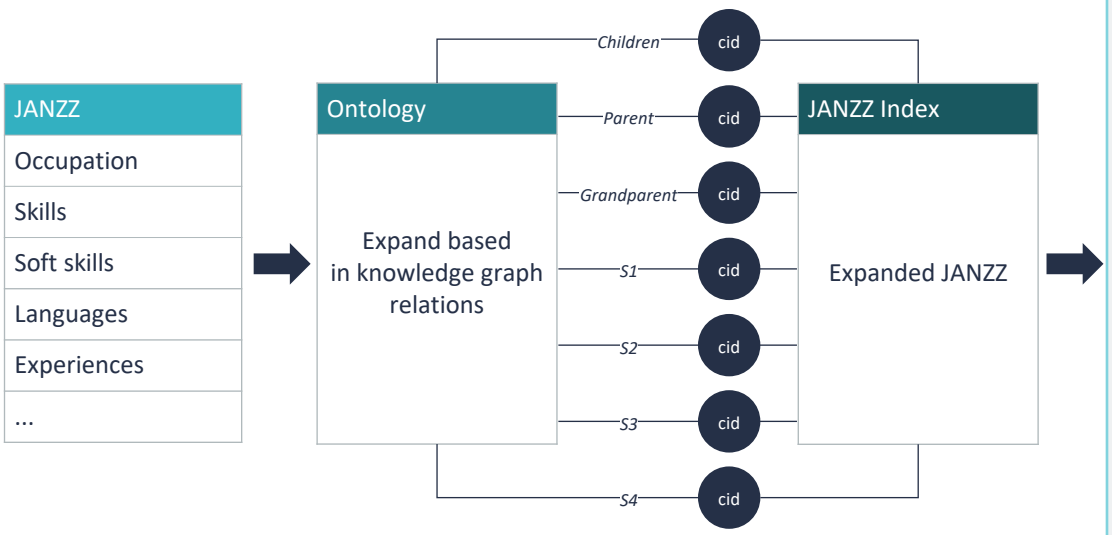
Offer Document 214

Offer Document 931

Offer Document 003

Occ	cid 123 cid 785
Skills	cid 782 cid 392 cid 235 cid 681 cid 931
SFS	cid 521 cid 487 cid 197 cid 997 cid 682
Lang	cid 42 cid 381
Exp	cid 55 cid 992 cid 547 cid 80
Edu	cid 102 cid 647 cid 312

SEARCH ENGINE
INFERENCE-TIME



Search Index

PostgreSQL

JANZZ Table					
Occ	cid 123	cid 785			
Skills	cid 782	cid 392	cid 235	cid 681	cid 931
SFS	cid 521	cid 487	cid 197	cid 997	cid 682
Lang	cid 42	cid 381			
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Elasticsearch

Offer Documents	
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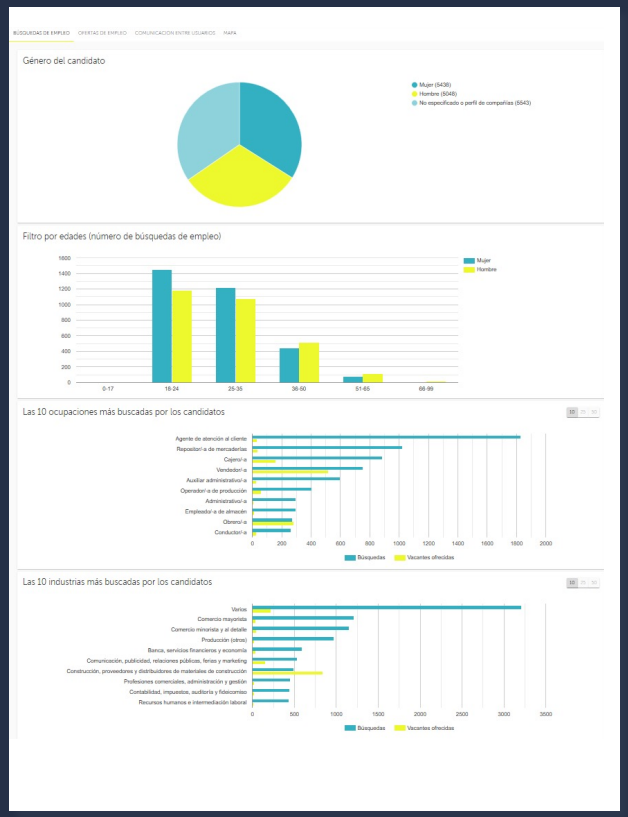
SFS	cid 521 cid 487 cid 197 cid 997 cid 682
Lang	cid 42 cid 381
Exp	cid 55 cid 992 cid 547 cid 80
Edu	cid 102 cid 647 cid 312

REAL-TIME LABOR MARKET ANALYTICS

ALIGNING POLICY OBJECTIVES TO IMPROVE OUTCOMES



Labour Market Dashboard

THANK YOU!
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