

Occupational mobility and retraining: Experimental evidence on firms' hiring preferences

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Outline

Introduction

Conceptual framework

Context and Design

Main Results

Heterogeneity with labour market tightness

Cost-benefit analysis

Conclusion

Motivation

- Coexistence of unemployment in some occupations, and excess demand (unfilled vacancies, high tightness) in others (e.g. plumbers, carers)
- Typically, two families of policies:
 - Redirection policies: nudge workers towards tighter labour markets.
 - Inexpensive.
 - Ineffective in settings in which employers are reluctant to hire unskilled workers.
 - Retraining policies: bridge skill gaps.
 - Expensive: pedagogical costs, opportunity costs (including UI during lock-in period).
 - Potentially effective, if employers value the skills acquired through retraining schemes.

This Paper: Questions

- Should governments finance costly retraining policies, or rely solely on search-redirection policies?
 - May depend on market tightness.
 - In tight markets: high labour demand.
 - In tight markets: employers may have low bars
- How does the trade-off between retraining and search-redirection change with the tightness in the target market?

This Paper: What we do

- Large-scale correspondence study in France (2021-24): 6,668 applications to 1,743 jobs in six occupations with high tightness.

Four main “profiles” of candidates:

1. **Incumbent**: initial training and experience in the position advertised.
 2. Movers with initial training and experience in a neighboring (less tight) occupation
 - **Untrained mover**: no retraining
 - **Short-retraining mover**: a few days of retraining
 - **Long-retraining mover**: several months of retraining
- Partial equilibrium labor market model to explore the role of tightness in the impact of retraining vs. redirection
 - Test prediction using geographical variations in tightness within each occupation

Contributions

1. Isolate the demand-side contribution to occupational imbalances: Cahuc, Carcillo, and Minea, [2021](#); Klæui et al., [2025](#)
 - Instead of reduced form evaluations mixing labor demand responses with selective uptake by workers
2. Within-study comparison of two alternative active labor market policies to fight occupational mismatch: [redirection of search effort](#) vs. [retraining](#)
 - Comparison across ALMPs (Card, Kluve, and Weber, [2018](#))
 - Recent evaluations of redirection policies (Altmann et al., [2023](#); Belot, Fouarge, et al., [2023](#); Belot, Kircher, and Muller, [2022](#), or job recommender systems
3. Start addressing the underexplored “when” and “how” of training policies (Carranza and McKenzie, [2024](#); Humlum, Munch, and Rasmussen, [2024](#))

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Conceptual framework: Setting

- **Employer** posts **job** j , of productivity component η_j , and **workers**, of productivity component y_i , apply to job
 - Productivity of worker i in job j would be $y_{ij} = y_i + \eta_j$
- Focus on employer's screening and callback decisions: threshold $y^*(\theta_l)$ beyond which candidates are called back, where θ_l is tightness in market l
 - Worker i is called back iff $y_i + \eta_j > y^*(\theta_l)$
- From workers' point of view, probability to be called back, if $F(\cdot)$ is cdf of $-\eta_j$, is:
$$p_{il} = F(y_i - y^*(\theta_l))$$
- Retraining is assumed to be a boost on y_i , which translates into a higher p_{il}

Conceptual framework: Two channels

- Compared to applying without retraining, retraining boosts callback probability following: $\lambda_{il} = \frac{\partial p_{il}}{\partial y_i}$
- How does this depend on local tightness θ_l ?

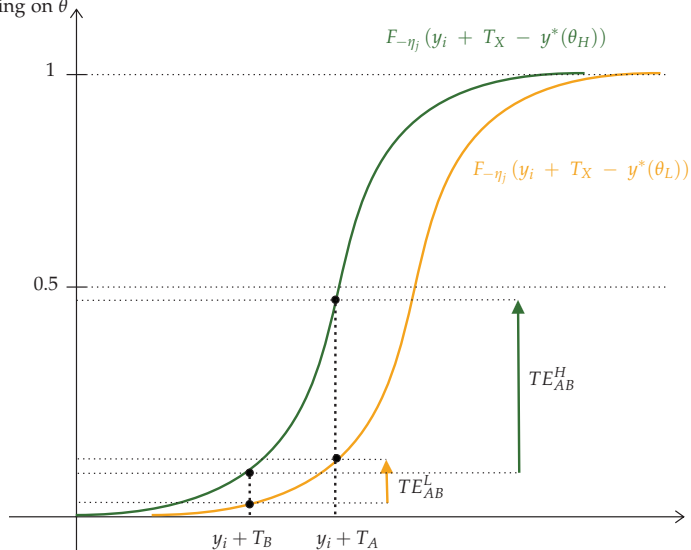
$$\frac{\partial \lambda_{il}}{\partial \theta_l} = \frac{\partial^2 p_{il}}{\partial y_i \partial \theta_l} = -\frac{\partial y^*}{\partial \theta_l} f'(y_i - y^*(\theta_l))$$

- Intuition:
 - Employers are less picky in tighter markets: $\frac{\partial y^*}{\partial \theta_l} < 0$
 - If distribution of η_j is unimodal, f' is positive, then negative after the mode
- We expect the differential impact of retraining (vs. redirection) to increase up to some level of tightness, and then decrease

Impact of training by labor market tightness

Callback rates

depending on θ



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Target and Source Occupations

- Criteria for target occupations: low to middle skilled; high tightness overall, with high geographic variability. choice of occupations
- Matching with neighbouring source occupations with lower tightness: occupational distance measured from task contents and observed transition. occupational distance

Targeted occupation	Neighbour
Restaurant employees (G1603)	Commercial employee w. multiple specialties (D1507)
Hairdressers (D1202)	Cleaning and sanitation worker (K2204)
Carers (J1501)	Cleaning and sanitation worker (K2204)
Bakers (D1102)	Shelf stocking and self-service (D1507)
Auto body technicians (I1606)	Electronic assembly and wiring (H2605)
Plumbers (F1603)	Maintenance of green spaces (A1203)

Resume design

1. “Indeed” CV database used to build education, training, experiences from real candidates’ resumes
2. Long and short retraining found on “La bonne formation” website
3. Address close to the job location to signal immediate availability (explicit mention of recent relocation makes no difference empirically)

Training characteristics

	Short retraining			Long retraining		
	Name	Duration	Av. price	Name	Duration	Av. price
Carers	Emergency care and first aid training	2 days	250 €	Nursing assistant	12 months	1500 €
Hairdressers	Online hairdressing course	5 days	700 €	CAP hairdressing	9 months	4000 €
Restaurant employees	Food hygiene HACCP	2 days	500 €	CAP restaurant and café-hotel service	12 months	9000 €
Auto body technicians	Introduction to dent removal	3 days	1000 €	Professional certificate auto body painter	7 months	12 000 €
Bakers	Introduction to bakery and pastry	4 days	1100 €	CAP baker	9 months	9000 €
Plumbers	Introduction to plumbing	4 days	1100 €	Professional certificate plumber-heating technician	7 months	10 000 €
Total		3 days	775 €		9 months	5875 €

Implementation

Table: JOB POSTINGS AND NUMBER OF APPLICATIONS BEING SENT, PER OCCUPATION

	Nb job postings	Nb of applications being sent
Female-dominated occupations		
Carers	283	1 101
Hairdressers	280	1 090
Restaurant employees	293	1 114
Male-dominated occupations		
Auto body technicians	303	1 144
Bakers	294	1 112
Plumbers	290	1 107
Totals	1 743	6 668

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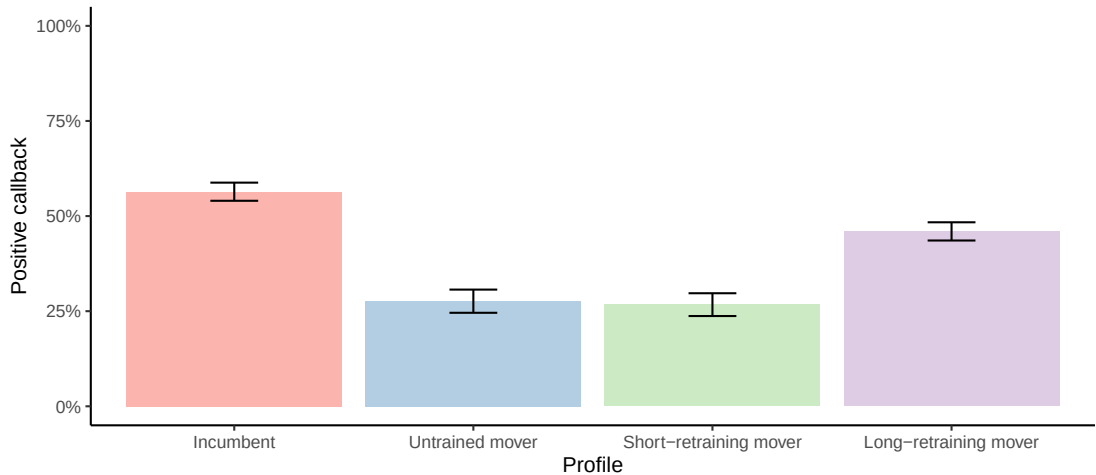
Main Results

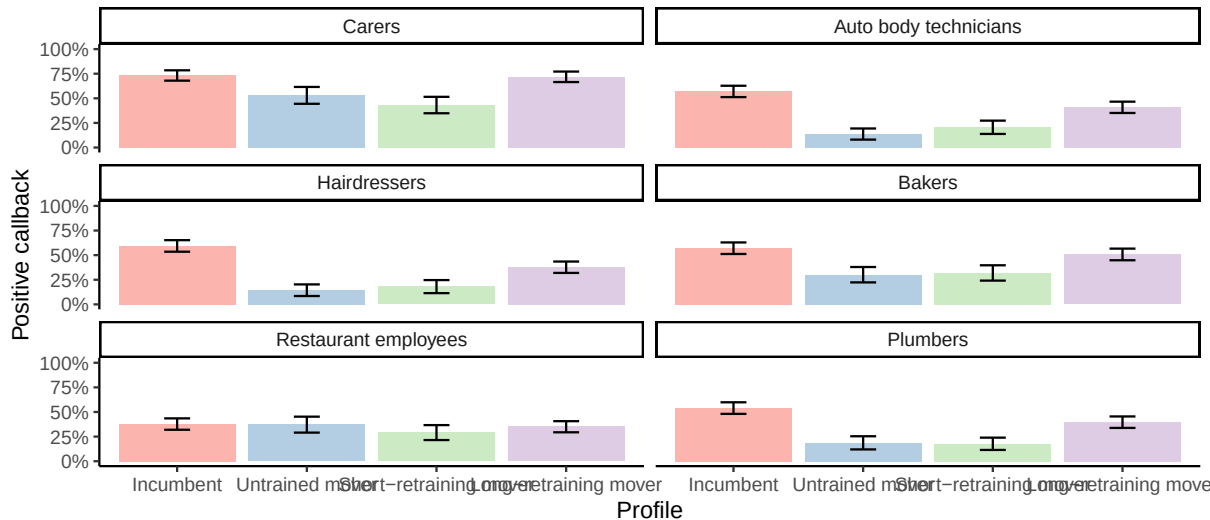
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Callback rates





Regression and control for experience

	OLS	+ controls	+ FEs
Long-retraining mover	-0.1038*** (0.0172)	-0.0883*** (0.0172)	-0.0969*** (0.0135)
Short-retraining mover	-0.2962*** (0.0195)	-0.2732*** (0.0214)	-0.2860*** (0.0189)
Untrained mover	-0.2875*** (0.0197)	-0.2641*** (0.0217)	-0.2796*** (0.0197)
Incumbent - 3 years of experience	-0.0340 (0.0211)	-0.0352 (0.0226)	-0.0282 (0.0185)
Incumbent - no experience	-0.1937*** (0.0206)	-0.1842*** (0.0223)	-0.1786*** (0.0182)
Incumbent mean	0.5638	0.5638	0.5638
Controls		✓	✓
App. Date + Job FE			✓
R ²	0.05130	0.06843	0.65565
Observations	6,668	6,668	6,668

- OLS: outcome callback
- Controls: CV version, app. order, explicit moving to the region, graduating from a CFA, and travel time between the candidate's address and job location.
- Additional FE: Application date, and job ad.
- Clustered at the application date-job ad level.

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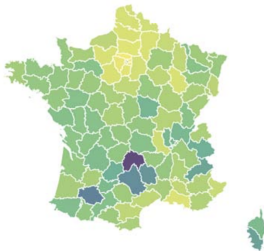
Identifying the heterogeneity with tightness

- Tightness cannot be randomized (too bad :-)) $\Rightarrow$ variations in tightness across local labor markets likely to be confounded with other factors affecting callback rates

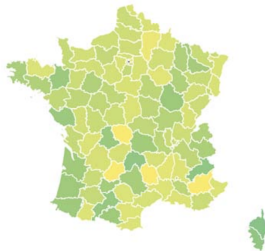
How can we limit these threats to identification?

1. We focus on geographical variation in tightness *within* occupations
(so as to avoid confounding coming from heterogeneity in callback rates across occupations, and its correlation with variation in tightness)
2. We control for firm size and firm productivity (as measured by estimated solow residual and apparent labor productivity)

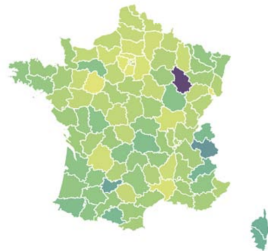
Carers



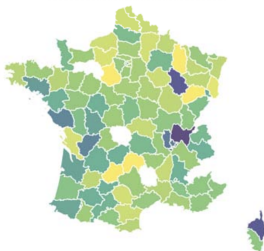
Hairdressers



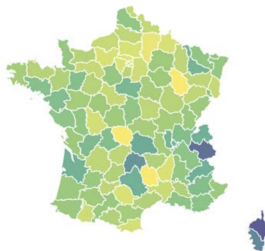
Restaurant Employees



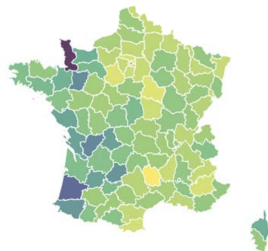
Auto Body Technicians



Bakers



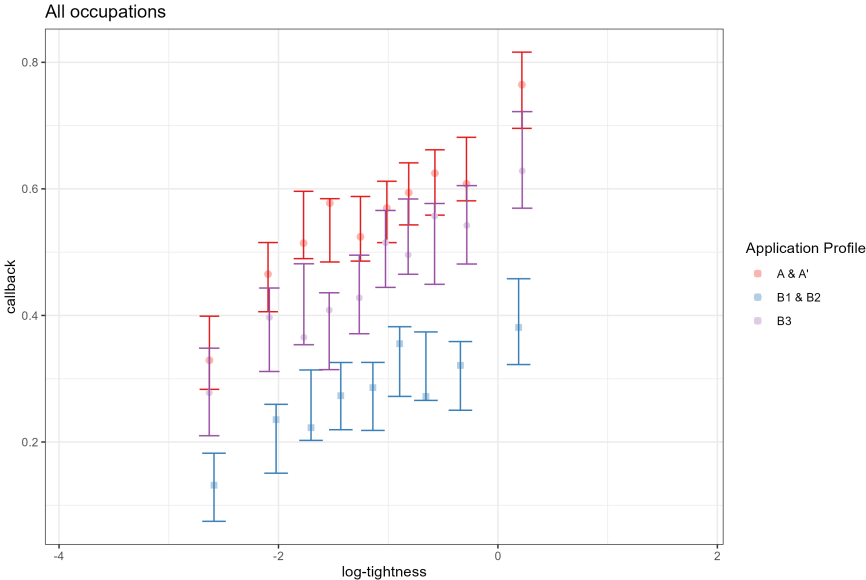
Plumbers



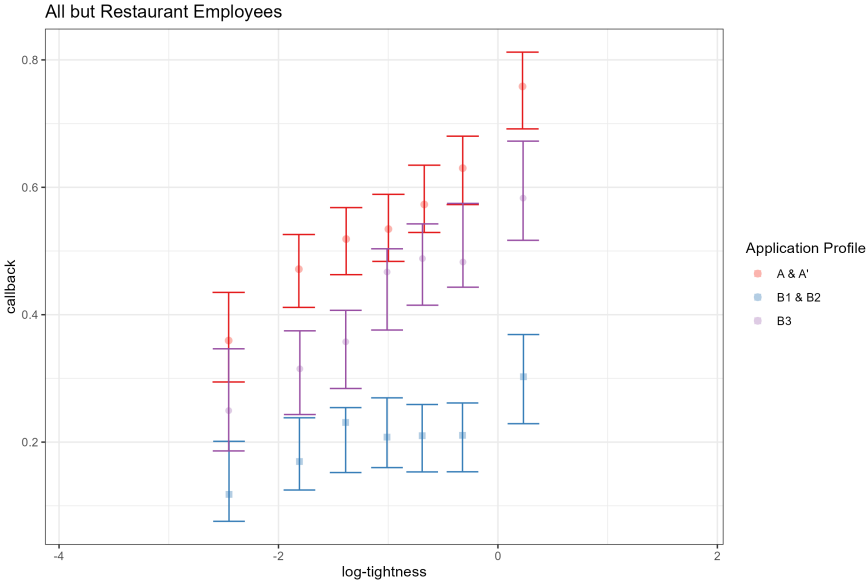
Tightness (V/U) by Local Labor Market



Heterogeneity of callback rates with tightness



Heterogeneity of callback rates with Tightness



Retraining (vs. redirection) by labour market tightness

	All occupations		All but Restaurant Empl.	
	(1)	(2)	(3)	(4)
Log-tightness	0.0889*** (0.0167)	0.0938*** (0.0182)	0.0638*** (0.0184)	0.0685*** (0.0204)
Log-tightness x Incumbent	0.0485** (0.0228)	0.0385 (0.0246)	0.0687*** (0.0253)	0.0543** (0.0274)
Log-tightness x Long retraining mover	0.0361 (0.0253)	0.0315 (0.0269)	0.0606** (0.0278)	0.0573* (0.0298)
Occupation Control	✓	✓	✓	✓
Additional Controls and Application Date FE		✓		✓
Observations	5,625	5,625	4,710	4,710

Reference type: Untrained and short-retraining movers.

Controls: Candidate id., sending order of app., travel duration to firm, recent move indicated, firm size and productivity. All controls interacted with profile category.

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Costs and benefits

- Costs:

- Retraining: pedagogical costs + UI (lock-in): around 15,000 euros. (Redirection: 0)

- Direct benefits:

- Retraining vs. redirection increases job-finding rate in shortage occ. from $\lambda_0 = 1/11$ to $\lambda_1 = 2/11$, multiplied by monthly UI: 1000 euros: total 5,500 euros

- Indirect benefits:

- Lower bound: job-finding bonus dissipates and no future benefits to retrained workers

- Upper bound: persistent unemployment gap between retrained and redirected workers (7% vs. 11.1% for 40 years): $\sum_{t=1}^T \beta^t (\text{Annual UI cost})(u_0 - u_1) = 11,200$ euros

- Summary:

- Lower bound: -9,500 euros

- Upper bound: 1,700 euros

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- On the benefits of retraining:
 - Long retraining is valued by employers
 - The effect increases with local tightness, even in already tight occupations
 - Short retraining has no detectable impact
- On the trade-off:
 - Even under favourable assumptions, not easy to find a justification to gov-subsidised retraining, compared to search redirection.
 - More parsimonious use of retraining?
- What about other sources for persistent labour market imbalances?

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Outline

Backup

Apprenticeship

- 35% of CAP holders are in apprenticeship
- Large gap in job finding rates after 6 months: 62% vs. 29%
 - Gap mostly due to retention in training firm (Cahuc and Hervein, [2023](#))

Choice of target occupations

- Low- to middle-skilled
 - Standard training is high-school level vocational certificate (CAP); exception: carer incumbents have “Diplôme d'État d'aide-soignant” (higher degree than CAP)
- Existence of appropriate short and long retraining
- National-level tightness with regional variations.
 - Tightness: composite indicator from DARES (hiring difficulties reported by employers; ratio of vacancies to number of job seekers; unemployed job seekers' job finding rate)
- High volume of job vacancies

Measure of occupational distance

- Goes beyond occupational mobility opportunities spotted by “experts” of the PES (in [fiches ROME](#)) or observed transitions (which may hide underused opportunities)
- Supervised machine learning to predict observed occupational transitions (FH-DADS) from target and source job description
- Trick: train only a in a limited subset of occupation pairs and stop learning early enough so as to not mimic only observed transitions
 - Lasso regressions preferred after comparing with random forest or CART: appropriate with relatively small training samples

CV: incumbent and untrained mover, body-car repair

back

Bastien Julien

20-12-2003

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Fraîchement diplômé du CAP Réparation des carrosseries, je suis à la recherche d'un poste de carrossier. Je suis rigoureux, très motivé et passionné par ce métier. En cours de mobilité dans la région, je suis disponible de suite. Je possède le permis et une voiture.

Expériences professionnelles

Apprenti carrossier peintre

Carrosserie Giraudeau

septembre 2019 - juin 2021

Blois (41)

Réparation tout sinistre et peinture (peinture lechler). Remise en forme, notamment par débosse-lage, planage, ponçage, toute carrosserie endommagée. Gérer les expertises (photo expertise), devis clients, commandes de pièces défectueuses. Élaboration des factures.

Formations

CAP Réparation des carrosseries

CFA interprofessionnel du Loir et Cher

2021

Blois (41)

Brevet des collèges

Collège Augustin Thierry

2018

Blois (41)

Loisirs

Foot en salle, musculation

Passionné de mécanique automobile

Lectures, BD

Lettre de motivation

Objet : candidature au poste de carrossier

Madame, monsieur,

C'est avec un vif intérêt que j'ai relevé votre annonce d'emploi pour le poste de carrossier. Je souhaite évoluer dans ma carrière et mettre mes compétences au profit d'un nouveau challenge. Très motivé à l'idée de rejoindre votre entreprise, je vous fais parvenir ma candidature.

Titulaire du CAP Réparation des carrosseries, j'ai de très bonnes compétences techniques. J'ai un bon sens de l'analyse et du diagnostic des dommages. Je connais les différents équipements électriques et électroniques et les différentes structures de véhicules. Ces compétences me permettent évidemment de procéder aux réparations classiques mais également au remplacement des pièces trop endommagées sans oublier les contrôles de rigueur, grâce à divers procédés d'assemblage (rivetage, soudage...). Je fais mon travail dans le respect des différentes normes de Sécurité.

Je suis précis, ordonné et rigoureux. Autonome, j'ai aussi une facilité à travailler avec les équipes sur place. Je serais heureux d'intégrer votre entreprise et de mettre à disposition toutes mes qualités et ma disponibilité. J'ai également une très bonne condition physique.

Je me tiens à votre disposition pour vous apporter des détails complémentaires sur ma candidature.

En espérant vous avoir convaincu de l'intérêt de ma candidature, je vous exprime mes salutations les meilleures.

Bastien Julien

19-05-1997

34 Avenue Sainte-marguerite Bocca, 06150 Cannes

07 57 59 48 22

bastien.julien@hotmail.com

J'aimerais me réorienter professionnellement vers le métier de réparateur en carrosserie après des expériences de monteur en câblage automobile. Je suis polyvalent, j'ai le sens des responsabilités et l'esprit d'équipe. En cours de mobilité dans la région, je suis disponible de suite. Je possède le permis et une voiture.

Expériences professionnelles

Monteur-câbleur mécanique-électrique

Leroy-Somer

septembre 2019 - juin 2021

Saint-Jean-de-Braye (45)

Assemblage de pièces électriques (transformateur de tension, d'intensité, résistance, goulottes, bornes, connecteurs...) à l'aide de plan mécanique et schéma. Montage mécanique et câblage de coffrets et de baies.

Technicien câblage automobile

ALL Circuits MSL

octobre 2017 - août 2019

Meung-sur-Loire (45)

Montage de faisceaux électroniques, assemblage de composant, raccordements. Entretien, réparation, diagnostic électronique. Réfection de bloc moteur.

Monteur-câbleur

Guinault S.A.

juillet 2015 – septembre 2017

Saint-Cyr-en-Val (45)

Insertion de disjoncteur, câblage sur cellule électrique, rivetage de cellule, préparation de capot de commande.

Agent de fabrication et d'assemblage

Novintec

septembre 2013 - juin 2015

Sully-sur-Loire (45)

Assemblage de pièces et test sur banc d'essai (huile moteur, coolanol, azote, kérosène, skydrol). Remplissage du PV d'auto-contrôle.

Formations

CAP Électricien

BTP CFA du Loiret

2015

Orléans (45)

Brevet des collèges

Collège Alain Fournier

2012

Orléans (45)

Loisirs

Foot en salle, musculation

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