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世界建筑  
World Architecture

高质量城镇化视角下的城市人因工程学 | Urban Ergonomics: Towards a Higher-quality Urbanisation

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# 建构的更新作用：从邮局到瑞恩波特建筑事务所的乌特勒支中央图书馆

## The Regenerative Role of Tectonics: From Post Office to the Utrecht Central Library by Rijnboutt Architects

伊拉里亚·詹内蒂/Ilaria Giannetti

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记忆与再生

栏目主持：阿尔伯托·博洛尼亚，米凯利·博尼诺，皮埃尔-阿兰·克罗赛特

建构在当代建筑设计文化中的实现

当代设计文化将“建构”这一术语认定为装配的艺术。对一个建筑项目进行批判性分析，或者在方法论层面上对其建造方面的设定进行分析，是一种没有地域界限的古老实践，它的理论源流来自于19世纪戈特弗里德·森佩尔的思想。森佩尔思想和务实的操作方法作为定义建筑理论的基础，在过去的两个世纪里获得了巨大的赞誉；以此作为起点，肯尼斯·弗兰姆普敦衍生出了他在《建构文化研究》中的批判和叙事路径——2007年王俊阳的译作使得该书在中国也得到了研究。正如意大利建筑师奇诺·祖奇2016年在米兰文化博物馆策划的主题为“Sempering<sup>i</sup>：建筑与设计中的过程与模式”的展览中所展示的，这种建筑设计方法的话题性可以概括为8个主要类别——堆叠、编织、折叠、连接、模压、吹塑、雕刻和铺贴：它们对应着尽可能多的源自建构操作的实用性设计意图，这些意图对今天的设计文化有直接影响，并在构成和装饰术语中被多样地应用。

因此，它是一种对专业实践有很大影响的理论构想，即使是当其作用于既有的建筑物时：在开始改造项目之前，对建筑物的分析和认知的过程始于

其建造方面的决定性特征——这成为一个重要的准备步骤，由此得以有意识地做出与既有建筑物的物质性本质一致的设计选择。通过这种方式，建构所决定的原则可以在建筑尺度上传递那些标志着建筑的记忆和再生的设计实例。

这里介绍的瑞恩波特建筑事务所的作品与这一设计研究路线是一致的：通过对原有建筑结构特征的识别，使得新建筑群得以在功能和建筑上再生。通过这种方式，原有的承重结构得到了升华，成为真正的空间装置并提升了新图书馆中一些重要房间的建筑品质。这种对建造问题的敏感性主导了这一改造项目，在这里，空间和装饰的品质通过新的或原有的结构构件和表面装饰材料之间的相互作用而成就。组装式的建构过程也催生了新立面的装饰构件，同时其组装感也通过给森佩尔体系中的“铺贴”增加表面镀层而得到削弱。

因此，这是一种被称为中欧的“建筑文化”（Baukultur）<sup>ii</sup>中特有的建筑设计方法，它显示了旨在突出建筑的构造特征以产生构成和空间质量的设计机制的巨大相关性。

这些原则也适用于现有建筑复杂的功能再生过程——由于对其物质本质价值的认可，这些过程显示出其本身是随着时间推移而延续集体记忆的载体，乌特勒支老邮局的案例就证明了这一点。（阿尔贝托·博洛尼亚）

译注/Notes from Translator

i 读音/z'empərɪŋ/，英文动词“semper”的现在进行时。在建筑和设计领域，指对材料或部件进行的建设性操作，在最终产品上留下有意义的形式痕迹。是来自建筑师戈特弗里德·森佩尔（Gottfried Semper, 1803-1879）姓氏的新词。

ii 建筑文化（Baukultur）描述了人类在改变自然或建筑环境方面的成就总和。与建筑学（建筑艺术）不同的是，建筑文化包括建筑环境的所有要素；建筑文化远远超出了单个建筑的建造和设计，还包括诸如城市发展和地方规划，工程师对交通结构的设计，特别是建筑艺术和公共空间的艺术。作为一个延伸的文化概念，建筑文化通常以一个国家或地区的历史和传统为基础。



1

2011年，位于诺伊德广场上的乌特勒支中央邮局在服务了近一个世纪后，向公众关闭。这座由建筑师约瑟夫·克劳威尔（1885-1962）在1919-1924年间设计和建造的建筑被认为是城市公共生活的象征，在2001年被命名为国家纪念碑<sup>[1]</sup>。2008年，荷兰瑞恩波特建筑事务所接受委托完成了该建筑的再开发项目，其中包括将其改造成一个带有商店、餐馆和自行车停车场的公共图书馆<sup>1)</sup>。室内设计由Zecc建筑事务所负责<sup>[2]</sup>。建筑师们接受了挑战并宣称他们要将该建筑改造成“城市的客厅”（huiskamer voor de stad）<sup>[3]</sup>。

受阿姆斯特丹学派的影响，克劳威尔项目的核心是可从诺伊德广场进入的邮局的公共接待大厅，以宏伟的抛物线型拱形天花板（长30m×高18m，跨度16m）为主要特色。天花由黄釉砖覆盖的拱券和窗户交替构成，并嵌有坚固的雕塑铁艺装饰，由雕塑家亨德里克·范登艾金德（1869-1939）制作，灵感来自埃及和亚述艺术。大厅周围是公众无法进入的约8000m<sup>2</sup>的办公区。此外，克劳威尔建筑群还有一个物流区作为邮件分拣和转运的出口，它

位于历史悠久的老运河上，如今运河已成为历史悠久的市中心的一个组成部分，因此不再适合发挥这一技术功能。

再开发项目着重于优化从诺伊德广场进入的大型拱顶大厅，并将大型办公区改造为向公众开放的新空间。为了满足功能需求，还需要在俯瞰运河的老物流区增加一栋包含礼堂和一系列商业服务设施的新建筑：通过这种方式，位于老运河的建筑前端参与进运河城市区域的历史文化更新，将其与诺伊德广场街区连接起来（图1）。

2020年3月14日，改造后的建筑群落成，其特点是老建筑的外观和材料与新功能的明显融合。

克劳威尔大楼的特点是采用了先锋的钢筋混凝土结构，同时，在办公区的地板和柱子上采用了当时已获得专利的“标准化”施工方案，在中央大厅采用了大胆的抛物线拱券，并在细节上与木质屋顶桁架系统进行了整合。公共接待大厅中的拱券用黄色釉面砖覆盖并以单独的装饰方案进行点缀，因此钢筋混凝土的使用完全被隐藏起来，但在办公室楼板中却可以看到它们的痕迹。即使是建筑两翼阁楼

中带有木桁架的屋顶结构，在原项目中也大部分被隐藏起来。

在再开发项目所做的选择中，对原有建筑的承重结构的形态和形象思考，正如我们前面已经提到的，通过两个互补的方法发挥了核心作用。第一种方法是根据原有建筑支撑结构的形态来定义综合体新空间的功能；第二种方法则是根据新空间的空間感和表现力概念，采取具体的干预措施，旨在强调承重结构的外观，例如，使原来隐藏的部分显露出来。

按照第一种方法，公共大厅抛物线拱券的大跨度将这一空间转变为新的“有顶广场”（图2），通过将建筑的所有通道移入相邻的两个侧翼，它被用作从诺伊德广场进入的接待区（图3、4）。同样，位于上层的新阅览室的设计也延续了原有木桁架的跨度，通过插入一系列新的窗户来强调它，既为这些空间提供了必要的自然采光，又在建筑内部与周围城市环境之间建立了新的视觉联系，促进了建筑与城市的融合。

按照第二种方法，阅览室中许多原本隐藏在克劳威尔设计中的桁架部分被暴露出来，从而将这些环境

1 从诺伊德广场观看乌特勒支中央图书馆外景，2020年7月/  
Utrecht Central Library, exterior view from the Neude, July 2020

## Memory and Regeneration

Column Editors: Alberto Bologna, Michele Bonino, Pierre-Alain Croset

### The Actuality of Tectonics in Contemporary Architectural Design Culture

Contemporary design culture identifies the term tectonics as the art of assembly. The critical analysis of an architectural project or, on a methodological level, its setting on the basis of construction issues, is an ancient practice with no geographical boundaries, which finds its theoretical roots in the 19th century Gottfried Semper's thinking. His ideas and pragmatic operational approach have served as the basis for the definition of an architectural theory which has garnered great critical acclaim over the last two centuries, representing the starting point from where Kenneth Frampton derives the critical and narrative path of his "Studies in Tectonic Culture" – studied also in China thanks to the 2007 translation by Wang Junyang. As demonstrated by the Italian architect Cino Zucchi in the exhibition "Sempering. Process and pattern in architecture and design" he curated in 2016 at the MUDEC Museum in Milan, the topicality of this approach to architectural design can be summed up in eight

critical categories – stacking, weaving, folding, connecting, moulding, blowing, engraving and tiling: they correspond to as many pragmatic design intentions derived from tectonic actions, which have a direct bearing on today's design culture and which see various applications in compositional and ornamental terms.

It is therefore a theoretical construct that has strong repercussions on professional practice, even when working on existing buildings: the process of analysing and knowledge of a building, starting from the constructive issues which characterise it, before to set up the transformation project, it becomes an essential and propaedeutic path to arrive to formulate conscious design choice, coherent with the material essence of the existing building. Thus, the principles dictated by tectonics can potentially transmit, at the architectural scale, those design instances that identify memory and regeneration in architecture.

The work of Rijnboutt Architects presented here is consistent with this design research line: the identification of the existing building's construction features has allowed the functional and architectural regeneration of the new building complex. In this way, the existing load-bearing structures have been

exalted and promoted to true spatial devices capable of generating the architectural quality of some significant rooms in the new library. This sensibility to construction issues has led to a renovation project in which the spatial and ornamental quality is obtained by the interaction between structural components and surface finishing materials, new or existing. The tectonic process of assembly generates also the ornamental component of the new façade, which thus declines through the surface cladding of the Semperian category of tiling.

It is therefore an approach to architectural design typical of the so-called Central European "Baukultur", which demonstrates the great relevance of design mechanisms aimed to exalt the building's constructive peculiarities to generate compositional and spatial quality.

These principles are also valid in the case of complex functional regeneration processes of existing architecture which, thanks to the acknowledgement of their material essence's value, reveal themselves to be the vectors that perpetuate over the time the collective memory, as demonstrated by the case of Utrecht's former post office. (Alberto Bologna)

In 2011, the main post office of the city of Utrecht, at the Neude square, closed to the public after almost a century of service. The building, designed and built by the architect Joseph Crouwel (1885-1962) between 1919 and 1924 and considered a symbol of the city's public life, was named a national monument in 2001<sup>[1]</sup>. The redevelopment project of the building, which involves its transformation into a public library with shops, restaurants and a bike parking, was entrusted to the Dutch architectural firm Rijnboutt Architects in 2008<sup>[1]</sup>. Zecc Architects dealt with interior design<sup>[2]</sup>. The architects undertook their task by declaring that they wanted to transform the building into "a living room of the city" (huiskamer voor de stad)<sup>[3]</sup>.

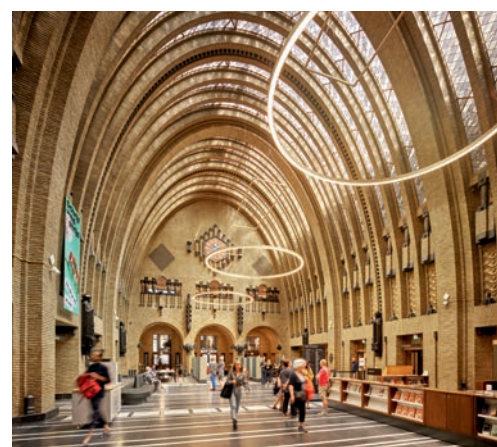
The heart of Crouwel's project, influenced by the Amsterdam School, was the public reception hall of the Post Office that was accessible from the Neude square, featuring an imposing parabolic vaulted ceiling (30 metres long × 18 metres high and a 16-metre span) consisting of the alternation of

arches covered in glazed yellow bricks and windowed areas and having robust sculptural ornamental iron inserts, inspired by Egyptian and Assyrian art and made by the sculptor Hendrik van den Eijnde (1869-1939). Around the hall was about 8000 square metres of offices that the public could not access. Finally, the Crouwel complex housed a logistics area – an exit for mail sorting and forwarding – on the historic Oudegracht canal, which is today an integral part of the historic city centre and, therefore, no longer suitable for this technical function.

The redevelopment project focused on enhancing the large vaulted hall, accessible from the Neude, and on the transformation of the large offices into new spaces open to the public. To incorporate the functional programme, it was also necessary to add a new building at the former logistics area overlooking the canal, that houses the auditorium and a series of new commercial services: in this way, the front of the building

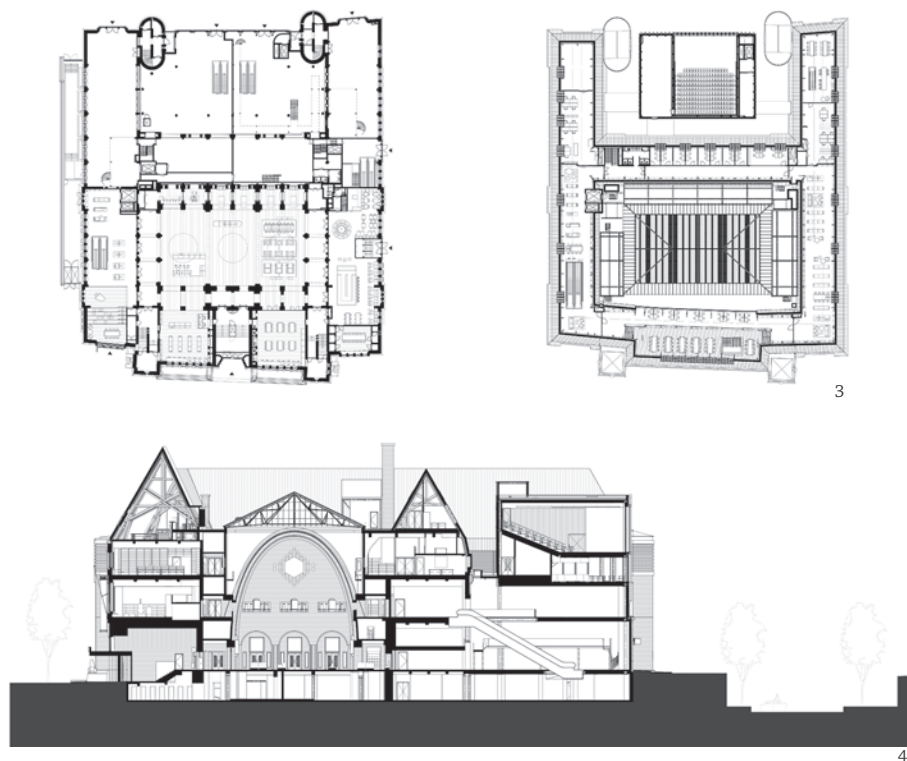
on the Oudegracht participates in the historical-cultural regeneration of the urban area of the canal, connecting it to the district of the Neude (Fig. 1).

Inaugurated on 14 March 2020, the renovated complex is characterised by the marked integration



2 乌特勒支中央图书馆主厅，2020年7月 / Main hall of Utrecht Central Library, July 2020 ( 1.2图片来源/Source: Courtesy of Rijnboutt Architects, 1.2摄影/Photo: Kees Hummel )





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的空间表现力与承重结构的形象联系起来（图5）。这种操作格外重视原有设计的记忆，因此没有粉刷原本隐藏的桁架部分。钢筋混凝土结构独特的构造细节也以同样的方式处理，柱子和梁之间的连接在改造项目中被揭示并完全暴露出来，成为位于三层的阅览室空间概念的一个组成部分（图6）。

该项目同时包含了新的建筑主体的设计。之所以需要建造新的建筑主体，是因为在巨大的穹顶大厅中布置像礼堂这样的庞大体量是不堪设想的。因此，该建筑的新体量位于原物流区，面向老运河，为运河城区的再开发做出了贡献。

类似于对原有建筑所进行的操作，对克劳威尔建筑特有的构造原理的反思在扩建项目中也发挥了

核心作用：与公共接待大厅中钢筋混凝土结构被充满时代感的釉面砖表皮完全掩盖所呈现的结构概念相类似，新建筑中承重结构的物质性与表皮分离，于是成为整个建筑最富有表现力的部分。新建筑体量的特点是由木材和钢铁组成的混合承重框架，在此基础上叠加立面（图7）。其木结构以由预制混凝土和深色釉面瓷砖组成的铰接式装饰支架为特色，在运河一侧的整个建筑群的外观中占据核心地位。外立面有着由釉面瓷砖和玻璃幕墙交替组成的波纹元素，坐落在由7个玻璃门洞组成的白色基座上，门洞的框架由成对的壁柱和条状过梁组成。

因此，建筑的施工阶段结合了两种定制设计的施工方案。基座的门洞采用预制的白色混凝土构件，

而上层的扩建部分则采用了特殊的釉面瓷砖，由曾在100年前为原建筑制作瓷砖的皇家马肯陶瓷公司生产。在这个操作中，对陶瓷砖的形式和组装的研究受到了特别注意：3种类型的瓷砖都是通过车间里的一系列实体化模型的基础上推敲3D数字模型设计而成的，只有这样才有可能给立面上的装饰性波纹定形（图8）。

作为一个成功地将原有建筑的特点与新的扩建部分结合起来的案例，这个项目在乌特勒支市中心上演了一场历史与21世纪的文化和技术的融合，从更广阔的角度证明了严谨的建构学考量作为项目推进的原则，如何成就了一种有价值的城市更新方式（图7）。□

## 注释/Note

1) 笔者于2020年12月1日采访了瑞恩波特工作室的建筑师弗雷德里克·维米尔什和建筑师卡里恩·范登布鲁克；瑞恩波特建筑事务所慷慨地分享了本文所发表的项目文件和图片。在采访过程中，我们重点讨论了设计过程中赋予承重结构在新空间的建筑和功能设计中的表现作用；因此，我们重点讨论了新建筑建设中采用的施工方案，与克劳威尔的建筑所呈现的方案一致。/The author interviewed the architect Frederik Vermeesch and the architect Karianne Vandenbroucke of the Rijnboudt studio on 1 December 2020; Rijnboudt

Architects generously shared the project documentation and images published in this text. During the interview we focused on the design process discussing the expressive role assigned to the load-bearing structure in the architectural and functional design of the new spaces; therefore, we focused on the construction solutions that were adopted in the construction of the new building, in line with those present in the Crouwel building.

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3 乌特勒支中央图书馆平面，瑞恩波特建筑事务所和Zecc建筑事务所/Floor plans of Utrecht Central Library, by Rijnboudt Architects & Zecc Architects (图片来源/Source: Courtesy of Rijnboudt Architects and Zecc Architects)

4 乌特勒支中央图书馆纵剖面，瑞恩波特建筑事务所和Zecc建筑事务所/Longitudinal section of Utrecht Central Library, by Rijnboudt Architects & Zecc Architects (图片来源/Source: Courtesy of Rijnboudt Architects)

5.6 乌特勒支中央图书馆阅览室，2020年7月/Reading rooms of Utrecht Central Library, July 2020 (图片来源/Source: Courtesy of Rijnboudt Architects, 摄影/Photo: Kees Hummel)



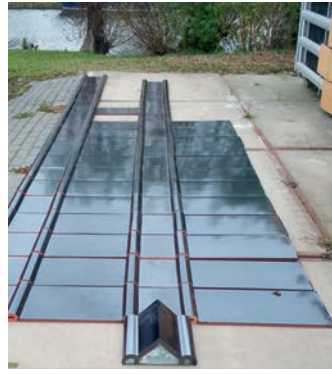
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of the appearance and materiality of the old building with its new functions.

The Crouwel building was characterised by a pioneering reinforced concrete structure that, at the same time, had "standard" construction solutions that were patented at the time, for the floors and columns in the offices, daring parabolic arches in the central hall, and original details for its integration with the wooden roof truss systems. The use of reinforced concrete, which was completely hidden in the public reception hall, where the arches are covered in glazed yellow bricks and embellished with the independent ornamental scheme, is however visible in the office floor slabs. Even the roof structure, with the wooden trusses of the lofts of the two wings of the building, was mainly hidden in the original project.

In the choices made in the redevelopment project, the reflection on the morphology and image of the load-bearing structure of the existing building assumed, as we have already mentioned, a central role that developed with two complementary approaches. The first approach involved basing the functional definition of the new spaces of the complex on the morphology of the supporting structure of the existing building. The second approach, on the other hand, involved making specific interventions aimed at emphasising the appearance of the load-bearing structure, for example by bringing to light originally hidden portions, in accordance with the spatial and expressive conception of the new spaces.

Following the first approach, the large spans of the parabolic arches of the public lobby transformed this space into the new "covered square", accessible from the Neude (Fig.2) and used as a reception area, and which was obtained by moving all the passageways of the building into the two adjacent side wings (Fig. 3, 4). In the same way, the design of



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the new reading rooms, on the upper floors, follows the metric of the spans of the pre-existing wooden trusses, emphasising it through the insertion of a series of new windows that provide both the necessary natural lighting for these spaces as well as a new visual relationship between the interior of the building and the surrounding urban environment, contributing to its integration with the city.

Following the second approach, many portions of the trusses that were originally hidden in Crouwel's design are exposed in the reading rooms, thus linking the spatial expressiveness of these environments to the image of the load-bearing structure (Fig. 5). This operation paid particular attention to the memory of the original design, with the sections of the originally hidden trusses left unpainted. The unique construction details of the reinforced concrete structure were also treated in the same way, concerning the connection between pillars and beams, being revealed in the redevelopment project and, left completely exposed, becoming an integral part of the spatial concept of the reading rooms located on the 3rd floor (Fig. 6).

An integral part of the programme was the design of the new body of the building. The need to build a new body of the building arose as it was unthinkable to fill up the monumental vaulted hall with voluminous objects like an auditorium. The new volume of the building, therefore, is in the former logistics area, facing the Oudegracht, contributing to the redevelopment of the urban area of the canal.

Like the work done on the existing building, reflection on the tectonic principles that characterised the Crouwel building played a central role in the extension project: analogously to the structural concept of the public reception hall, in which the reinforced concrete structure was completely hidden by the evocative glazed brick cladding, in the new building, the materiality of the

load-bearing structure has been separated from the cladding, to which the architectural expressiveness of the whole was entrusted. The new volume of the building is characterised by a mixed load-bearing frame, in wood and steel (Fig. 7), on which a façade has been superimposed, with a wooden structure characterised by an articulated ornamental carter that, consisting of elements made of prefabricated concrete and dark enamelled ceramic tiles, assumes a central role in the appearance of the entire complex on the canal side. The façade has, on a white base consisting of seven glazed portals framed by paired pilasters and striped architraves, the alternation of corrugated elements, made of enamelled ceramic tiles, and glass panelling.

The construction phase, therefore, combined two custom-designed construction solutions. The portals of the basement are made with prefabricated white concrete elements, while the upper extension makes use of special enamelled ceramic tiles, produced by the Royal Tichelaar company, the same company that had made the tiles of the original building 100 years earlier. In this operation, particular attention was paid to the study of the forms and the assembly of the ceramic tiles: through the development of 3D digital models supported by the realisation of a series of mock-ups (Fig. 8) in the workshop, the three types of tiles were designed in this way, with which it was possible to give shape to the ornamental fold of the façade.

This project, an example of successful integration of the characteristics of the original building and its new extension, staged a cultural and technological fusion between history and the 21st century in the heart of the city of Utrecht, providing in a broader perspective, the testimony to how a rigorous consideration of tectonics as the project driving principle, can constitute a worthwhile way of urban regeneration (Fig. 7).□

7 从老运河观看乌特勒支中央图书馆外景，2020年4月/Utrecht Central Library, exterior view from the Oudegracht, April 2020 (图片来源/Source: Courtesy of Rijnboutt Architects, 摄影/Photo: Kees Hummel)

8 乌特勒支中央图书馆，由皇家马肯陶瓷公司设计的瓷砖车工实物模型，2018年/Utrecht Central Library, mock-up of the ceramic tile carter by Royal Tichelaar, 2018 (图片来源/Source: Courtesy of Rijnboutt Architects)

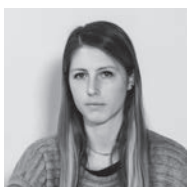




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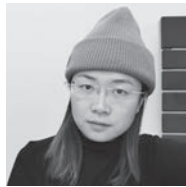
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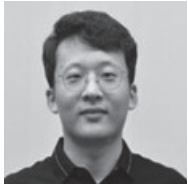
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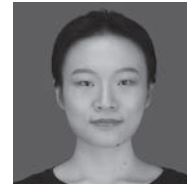
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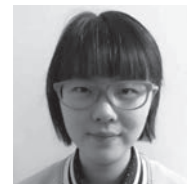
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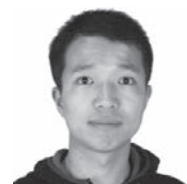
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